

SANMOTION

MOTION CONTROLLER

C

With EtherCAT interface

CPU
1.6GHz
1.8GHz



SANYO DENKI

SANMOTION C

MOTION CONTROLLER

Ether**CAT**[®]

CE cUL^{us}



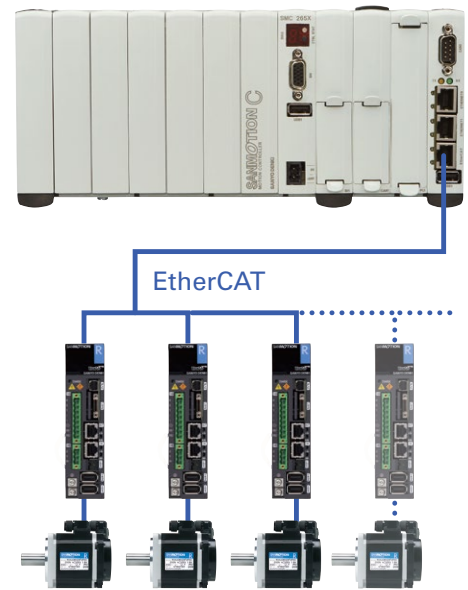
With high-speed fieldbus EtherCAT interface

EtherCAT interface is provided as standard.

With 100 Mbps high-speed and high-reliability communications, this fieldbus speeds up the system control capability, shortening the device takt time significantly.

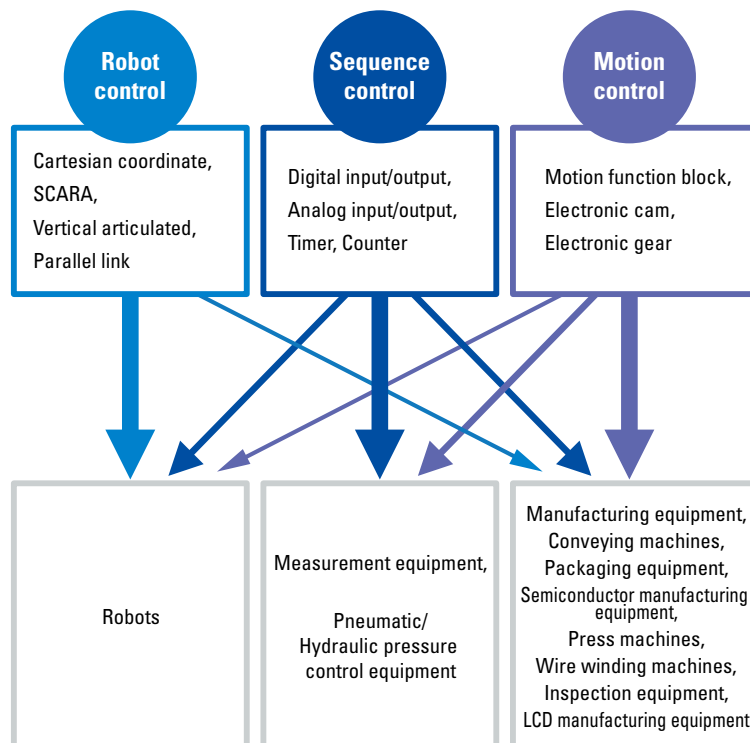
For details on AC servo systems with an EtherCAT interface, see the SANMOTION R ADVANCED MODEL catalog.

It can be downloaded from the product page under the category "Product Information" on our website.



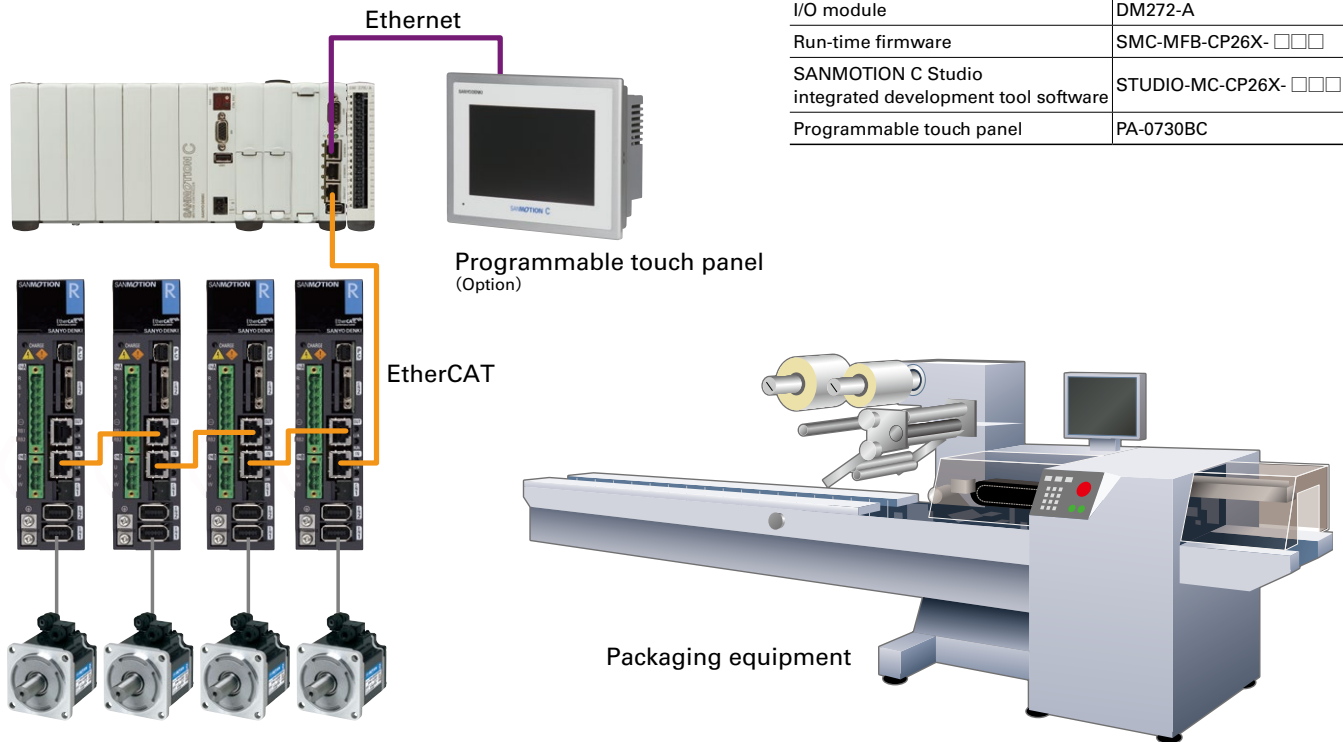
Controller with three control functions

The SANMOTION C has the three functions of motion control, robot control, and sequence control. They enable to build a variety of application systems easily.

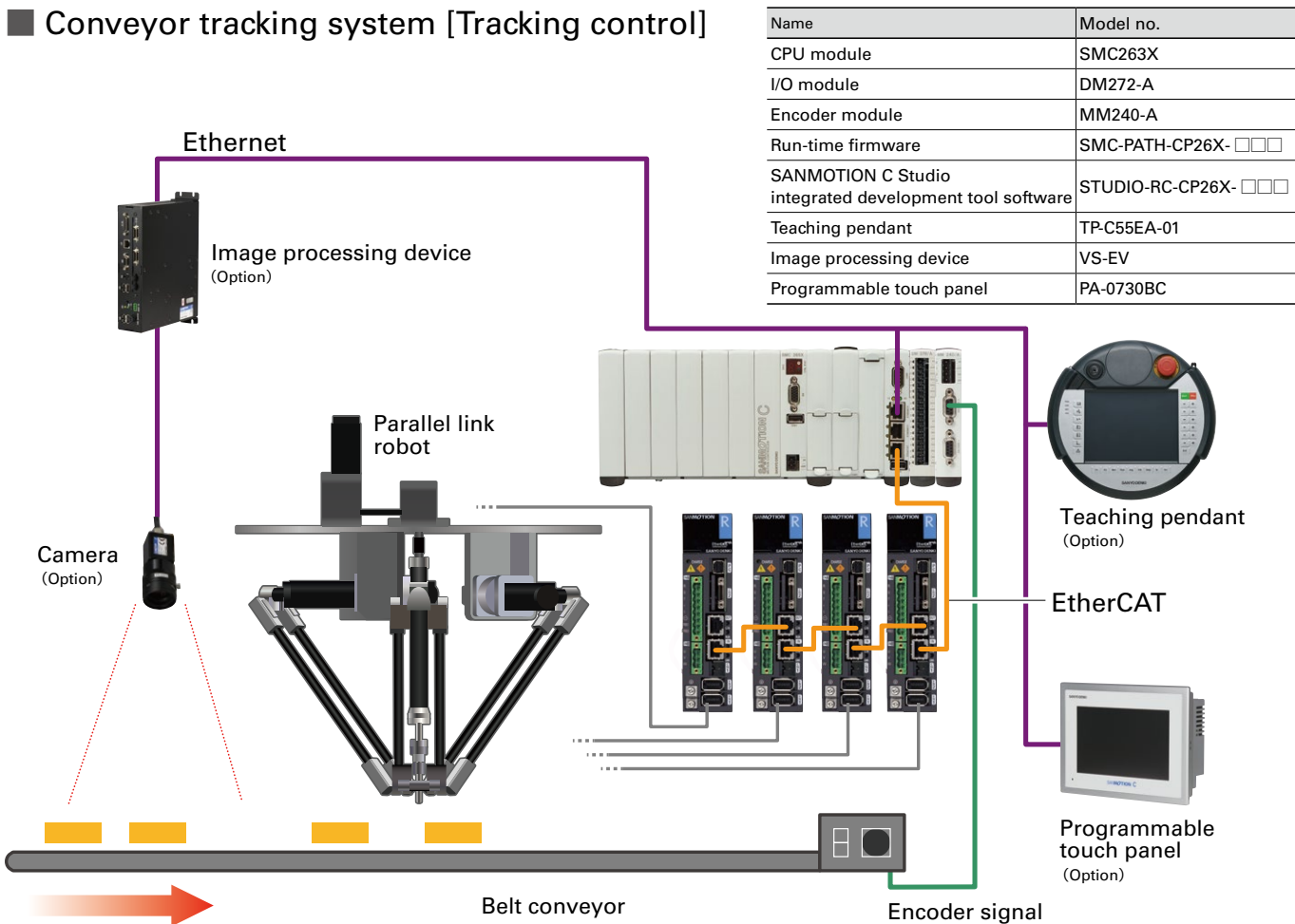


System configuration examples

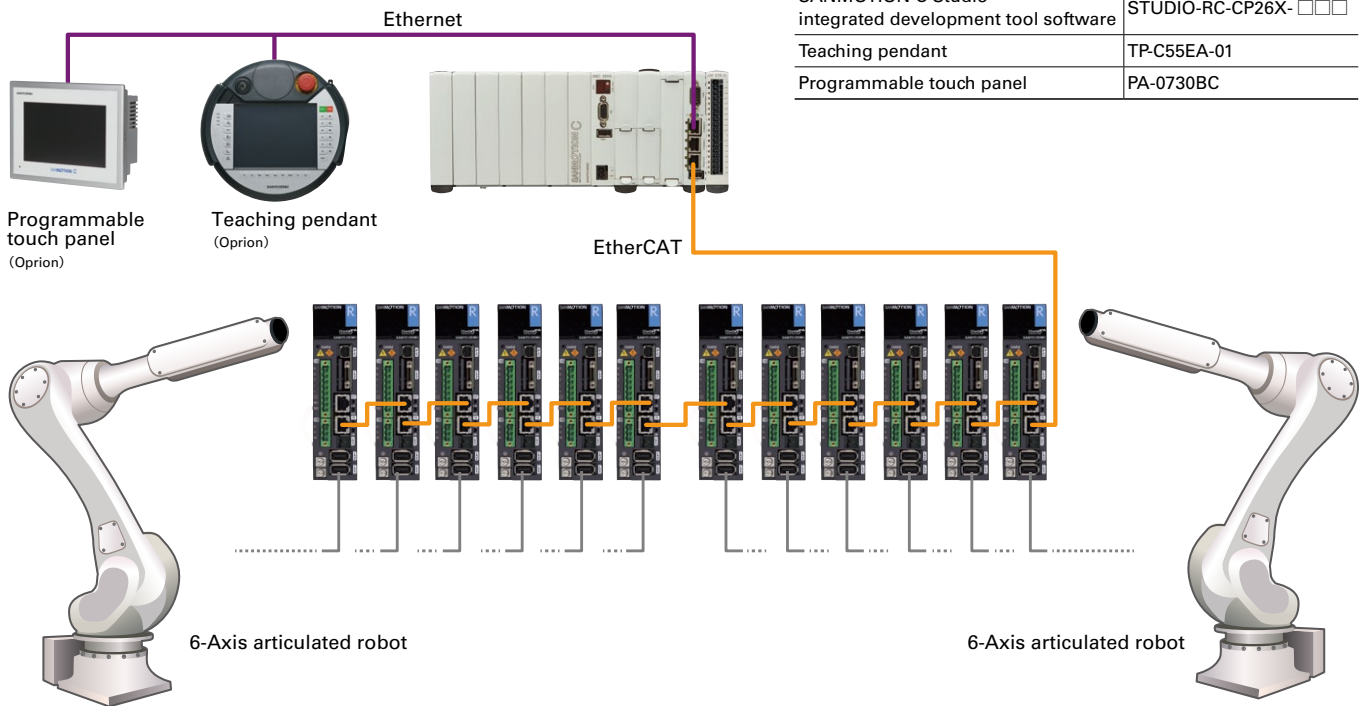
■ Packaging equipment [Electronic cam, Electronic gear control]



■ Conveyor tracking system [Tracking control]



Multi-robot system [Coordinated control]

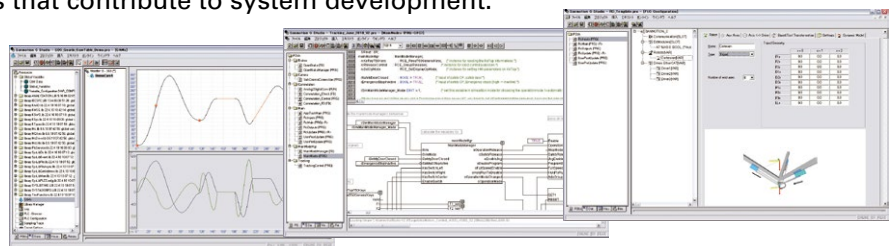


Software, Peripherals

"SANMOTION C Studio" integrated development tool software

Software with a variety of functions that contribute to system development.

- Programming tool
- Electronic cam editor
- Configuration tool
- Simple HMI tool
- Analysis and diagnosis tool



High-speed "Image processing device"

- The VS-AS type has high speed object sorting and measuring capabilities.
- The VS-EV type offers a number of built-in functions, including positioning and component defect or shortage inspection.
- They are suited for developing systems of conveying machinery and inspection equipment.



Easily configurable "Programmable touch panel"

- The touch panel screen interface can be configured just by selecting from a rich set of on-screen elements.
- The touch panel simulation function allows for checking of the touch panel operation on a PC, shortening the development time.
- The high-resolution screen is highly visible, and has superior operability.



Module structure

CPU module
SMC263X
SMC265X

Compact flash
 Run-time firmware



- SMC-MFB-CP26X-
 - SMC-PTP-CP26X-
 - SMC-PATH-CP26X-
- Note: denotes the software versions.

Plug-in module

Serial interface

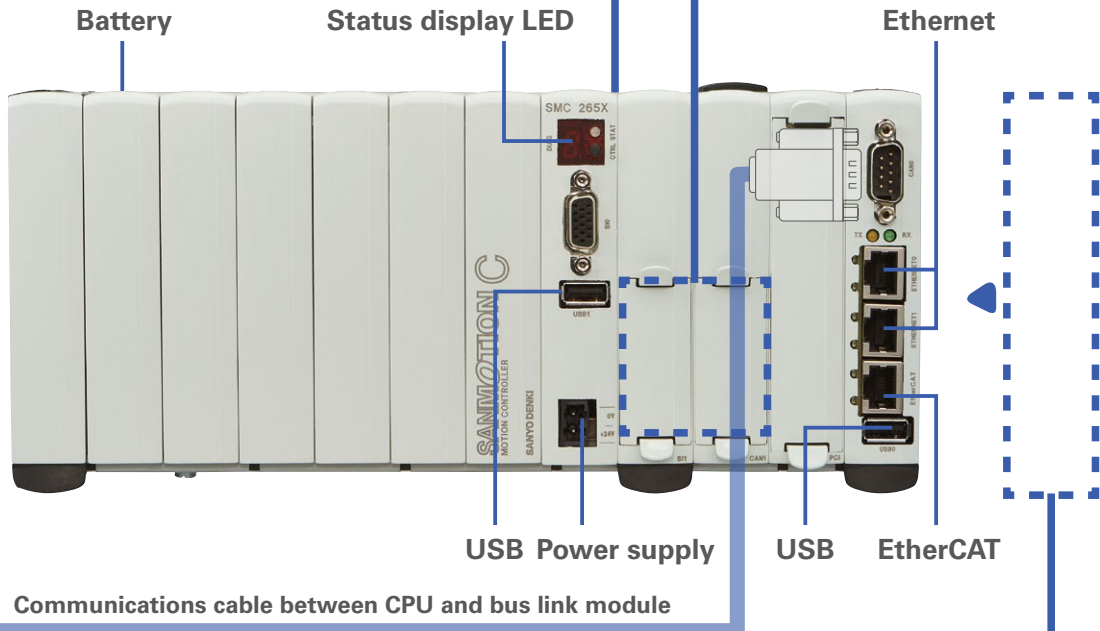
CAN interface



SX210-A
 SX230-A



FX200-A

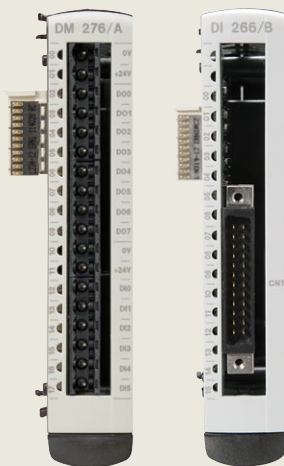


Bus link module



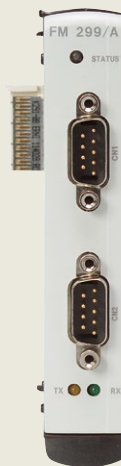
BL210-B

I/O module



- DM272-A
- DM276-A
- DI266-A
- DO276-A
- DI266-B
- DO276-B
- DI286-A
- DO286-A
- DO286-B

Fieldbus module



FM299-A

Interface module



SM210-A
 SM230-A

Encoder module



MM240-A

Specifications

■ CPU module

Model no.	SMC263X	SMC265X	Remarks
CPU	1.6 GHz	1.8 GHz	
Memory	1 GB		
Battery backed up SRAM	1 MB		
Specifications of provided interfaces	EtherCAT	100 Mbps	Motion bus RJ-45 connector
	CAN	125 kbps to 1 Mbps	D-Sub 9-pin female connector
	Ethernet	10/100 Mbps	RJ-45 connector
	USB	USB 2.0 high speed	For memory storage
Max. number of expansion units	12		
Input power supply	24 VDC (19.2 to 30 VDC)		2-pin connector x 1 (Phoenix Contact) ^{*2}
Maximum input power	99 W		
Rush current	10 A		
Maximum output power (K-BUS 24 VDC)	40 W		
Maximum output power (K-BUS 5 VDC)	10 W		
Cooling method	Forced air cooling		
Mass	1,335 g		

■ Expansion module

Type	Model	Specifications	Mass	Cable side connector
Plug-in module	SX210-A	RS-232C, baud rate: 1,200 to 115,200 bps	31 g	D-Sub 9-pin female connector
	SX230-A	RS-485/422, baud rate: 1,200 to 115,200 bps		
	FX200-A	CAN communication speed: 125 Kbps to 1 Mbps	27 g	
I/O module Photocoupler insulation	DM272-A	Digital input: 8 points, 24 VDC, negative common input Digital output: 8 points, 24 VDC, 1 A, source output	135 g	2-pin connector x 1 + 8-pin connector x 2 (Phoenix Contact) ^{*2}
	DM276-A	Digital input: 6 points, 24 VDC, positive common input Digital output: 8 points, 24 VDC, 1 A, sink output	135 g	
	DI266-A	Digital input: 16 points, 24 VDC, positive common input	125 g	24-pin connector x 1 (Fujitsu Component)
	DI266-B	Digital input: 16 points, 24 VDC, positive common input	125 g	
	DO276-A	Digital output: 16 points, 24 VDC, 0.5 A, sink output	130 g	2-pin connector x 1 + 8-pin connector x 2 (Phoenix Contact) ^{*2}
	DO276-B	Digital output: 16 points, 24 VDC, 0.5 A, sink output	130 g	
	DI286-A	Digital input: 32 points, 24VDC, positive/negative common input	135 g	40-pin connector x1(Fujitsu Component)
	DO286-A	Digital output: 32 points, 24VDC, 0.1 A, source output	135 g	
	DO286-B	Digital output: 32 points, 24VDC, 0.1 A, sink output	135 g	
	Non-insulation	AM280-A	Analog input: 4 points, ± 10 V or 0 to 10 V Analog output: 4 points, ± 10 V	135 g
Fieldbus module	FM299-A	GA1060 motion bus, maximum 16 axes control	130 g	D-Sub 9-pin female connector x 2
Interface module	SM210-A	RS-232C, 2 ch, baud rate: 1,200 to 115,200 bps	132 g	
	SM230-A	RS-485/422, 2 ch, baud rate: 1,200 to 115,200 bps	132 g	
Encoder module	MM240-A	Encoder input: 2 ch, maximum input frequency: 250 kHz Latch input: 2 points, 24 VDC, positive/negative common input	135 g	2-pin connector x 2 (Phoenix Contact) ^{*2} D-Sub 9-pin male x 2
Bus link module ^{*1} <small>Communication module for connecting expansion modules</small>	BL210-B	Communication rate: 125 kbps to 1 Mbps	121 g	2-pin connector x 1 (Phoenix Contact) ^{*2} D-Sub 9-pin female x 1

*1 Bus link module expands up to 12 units.

*2 Connector kit options are available, see p. 8. Prepare other connectors and cables as necessary.

■ Common specifications

Operating ambient temperature	0 to +55°C
Storage ambient temperature	-40 to +70°C
Operating/Storage ambient temperature	10 to 95% (no condensation)
Vibration resistance	Complies with EN 61131-2. For frequency range $5 \leq f < 9$ Hz, half amplitude: 3.5 mm; for frequency range $9 \leq f < 150$ Hz, acceleration: 9.8 m/s ² .
Shock resistance	147 m/s ² in compliance with EN 61131-2
Operating altitude	2000 m max.
Installation location	In control panel
Overvoltage category	II or lower
Degree of pollution	2 or lower

Run-time firmware

Lineup

Model no.	Applications	Description
SMC-MFB-CP26X-□□□	Sequence/Motion control	
SMC-PTP-CP26X-□□□	Sequence/Motion/Robot control	PTP (point-to-point) control
SMC-PATH-CP26X-□□□	Sequence/Motion/Robot control	3-Dimensional linear, circular interpolation control

Note: □ denotes the software versions. Contact us for details.

Motion control function specifications

Number of axes controlled	64 axes maximum
Calculation period	1 to 8 ms
Control type	Position control (PTP), Velocity control, Torque control
Acceleration/deceleration type	Automatic trapezoidal acceleration/deceleration, S-shaped acceleration/deceleration
Control unit	Any desired (pulse, mm, inch, degree)
Maximum reference value	-2147483648 to 2147483647 (32-bit signed)
Programming language	IL, ST, LD, FBD, SFC, and CFC in compliance with IEC 61131-3.
Function block	Homing, Relative mode, Absolute mode, Velocity mode, CamIn, GearIn

Robot control function specifications

Number of axes controlled (per one robot)	9 axes maximum (robot, 6 axes, 3 additional axes)
Calculation period	2 to 8 ms
Control type	PTP, 3-Dimensional linear, 3-Dimensional circular
Teaching type	Remote teaching, numeric input
Control unit	Any desired (pulse, mm, inch, degree)
Programming language	Original robot language
Robots supported	Cartesian coordinate robots, SCARA robots, Vertical articulated robots, Parallel link robots

Peripherals

Cables and connectors with terminal resistors for GA1060 motion bus

Model no.	Specifications
AL-00642156-□□	Cable between controller and amplifier, Maximum length 10 m
AL-00642351-□□	Cable between amplifiers, Maximum length 3 m
AL-00642358-01	Connector with terminal resistor for amplifier side
AL-00642356-01	Connector with terminal resistor for controller side

Note: □ denotes the cable length. Contact us for details.

Connector set (Manufacturer: Phoenix Contact)

Model no.	Specifications	Manufacturer model no.
AL-00591171-01	For CPU module and bus link module power supply	MSTB2,5/2-ST-5,08 ×1
AL-00591171-02	For I/O module	MSTB2,5/2-ST-5,08 ×1 MSTB2,5/8-ST-5,08 ×2
AL-00591171-03	For encoder module power supply	MSTB2,5/2-ST-5,08 ×2

Connector (Manufacturer: Fujitsu Component)

Not available at SANYO DENKI. Prepare as necessary.

Terminal type		Manufacturer model no.	
		24-pin connector	40-pin connector
Solder	Socket	FCN-361J024-AU	FCN-361J040-AU
	Connector cover	FCN-360C024-J2*	FCN-360C040-J2*
Crimp	Socket	FCN-363J024	FCN-363J040
	Connector cover	FCN-360C024-J2*	FCN-360C040-J2*
	Contact	FCN-363J-AU	FCN-363J-AU
IDC (insulation displacement contact)		FCN-367J024-AU/F	FCN-367J040-AU/F

* Besides J2 type connector covers, B types and E types can be used.

Cooling fan

Model no.	Specifications
SMC26FAN	Cooling fan for replacement

Software, Peripherals

■ “SANMOTION C Studio” integrated development tool software

Model no.	Description
STUDIO-MC-CP26X-□□□□	Sequence/Motion control integrated development tool
STUDIO-RC-CP26X-□□□□	Robot control integrated development tool

Note: □ denotes the software versions. Contact us for details.

■ Optional development tool software

Model no.	Description
ROBOT-CONTROLEDIT	Robot programming development tool

■ Image processing device

Model no.		VS-AS3L	VS-EV	Remarks
Main unit	Exterior dimensions	125(W)×50(H)×87(D) mm	219.2(W)×52.8(H)×181.2(D) mm	
	Mass	Approx. 290 g	Approx. 1500 g	
	Rated power supply	24 VDC ±10%, 0.5 A	24 VDC ±10%, 2 A	
	I/O port	Input: 5 points, Output: 5 points	Input: 4 points, Output: 4 points	
	Camera input	1 (for bundled camera)	2 (for bundled camera)	
	LED lighting output	1 point (max. 0.3 A)	2 points (total 1 A or less)	
	Monitor output	1 (analog VGA)		
	USB	1 (for bundled mouse)	4 (USB2.0)	
	PS2	—	1	
LAN	1 (10/100 Mbps)	1 (10/100/1000 Mbps)		
Camera	External dimensions	23(W)×23(H)×30(D) mm		One camera is supplied as standard. Camera lenses are sold separately. Select a suitable lens from the following table.
	Mass	Approx. 140 g		
	Lens mount type	C mount		
	Cable length	5 m		
	Image sensor	Type	Monochrome, CMOS, Global shutter	
Pixels		300,000		
Shared	Operating environment	Ambient temperature	0 to +50°C	
		Ambient humidity	20 to 80% (no condensation)	

Optional peripherals for image processing device

Name	Model no.	Specifications		
Camera	VS-CMH-MT1	Option product for when two or more cameras are to be used. Specifications are identical to those in the camera table above.		
LED light	VS-ARING90WD	External dimensions	φ90 (ext.)×φ40 (int.)×28 (H) mm	
		Mass	Approx. 120 g	
		Rated power supply	24 VDC ±10% , 0.3 A	
	Type	Diffused white ring LED		
	VS-FL4973W	External dimensions	73(W)×49(D)×16.5(H) mm	
		Mass	Approx. 52 g	
Rated power supply		24 VDC ±10% , 0.225 A		
Type	Diffused white flat LED			
Lens	VS-L1614V	Focal length	16 mm	
		Focusing distance	400 mm to inf.	
		Mass	34 g	
	VS-L2514V	Focal length	25 mm	
		Focusing distance	500 mm to inf.	
		Mass	36 g	
	VS-L3518V	Focal length	35 mm	
		Focusing distance	300 mm to inf.	
		Mass	47 g	
	VS-L5018V	Focal length	50 mm	
Focusing distance		1000 mm to inf.		
Mass		67 g		
Extension tube	VS-EXR	Type	A set of 0.5, 1, 2, 5, 10, 20, and 40 mm long tubes	
LED light cable	VS-CB1-24VL05	Cable length	5 m	

Peripherals

■ Teaching pendant

Model no.	TP-C55EA-01	TP-C55EB-01 ^{*1}	TP-C20EA-01	TP-C20EB-01 ^{*1}
Exterior dimensions	252(W) × 240(H) × 100(D) mm		82/162(W) × 226(H) × 55(D) mm	
Mass (Excluding cable)	1250 g		480 g	
Connection method	Connects to CPU module through relay to junction box ² (cable length: 5 m)			
Display	6.5" LCD, 65536 colors, 640 x 480 pixels (VGA), status LED x 4		3.4" LCD, 65536 colors, 480 × 272 pixels, status LED x 4	
Control panel	Touch panel, emergency stop button, enabling switch (3-position), keypad (31 keys)		Touch panel, emergency stop button, enabling switch (3-position), keypad (23 keys)	
Operating ambient temperature	0 to + 45°C			
Operating ambient humidity	5 to 95% (no condensation)			

*1 If the SANYO DENKI logo is not required, specify model number "TP-C□□EB-01".

*2 A junction box is included with the Teaching pendant.

Optional peripheral for the teaching pendant

Name	Model no.	Remarks
Bridge connector	AL-00920880-01	Connector for bypassing emergency stop signal when a pendant is not connected

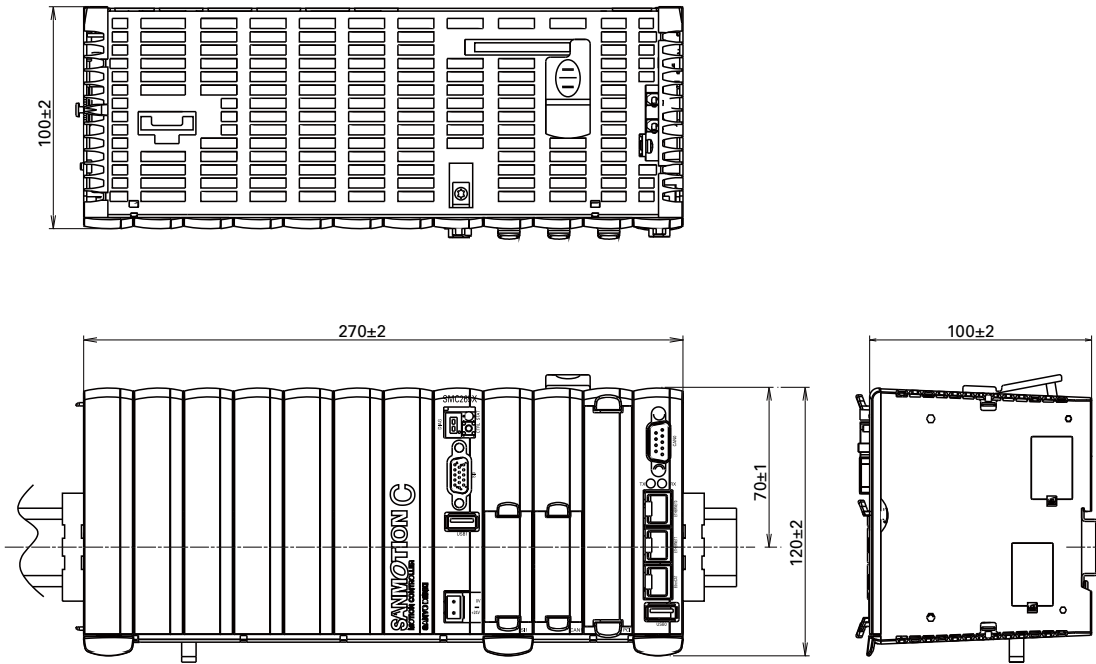
■ Programmable touch panel

Model no.	PA-0730BC	
External dimensions	212(W) × 156(H) × 57(D) mm	
Mass	Approx. 1,200 g	
Rated power supply	24 VDC, 1.1 A	
Screen size	7 inch	
Resolution	800(W) × 480(H) pixels	
Display type	TFT, wide touch screen	
Colors	65,536	
Protection grade	Front panel: IP65, Back side: IP20	
Backlight	LED	
USB	1	
COM1	RS-232C only	
COM2	Selectable RS-232C / RS-422 / RS-485	
LAN	1 (10 /100 Mbps)	
Operating environment	Ambient temperature	0 to +50°C
	Ambient humidity	20 to 80% (no condensation)

Dimensions (Unit : mm)

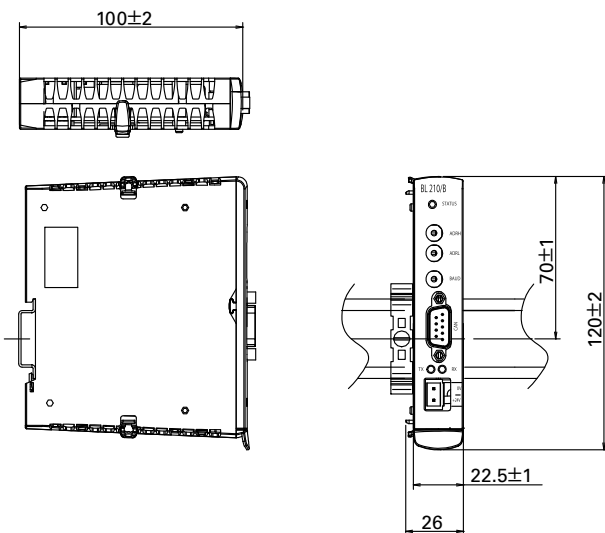
CPU module

SMC263X, SMC265X ● Option Power supply connector (model no.: AL-00591171-01)



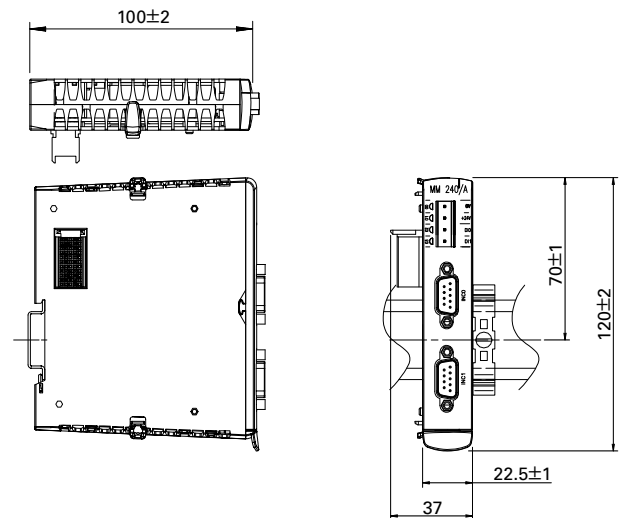
Bus link module

BL210-B ● Option Power supply connector (model no.: AL-00591171-01)



Encoder module

MM240-A ● Option Power supply connector (model no.: AL-00591171-03)



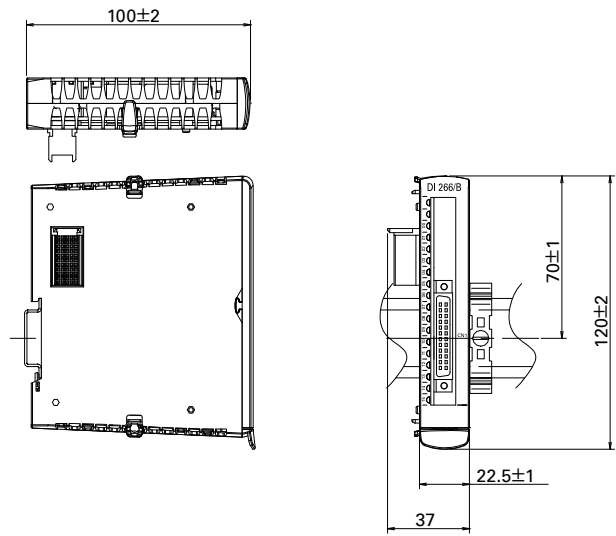
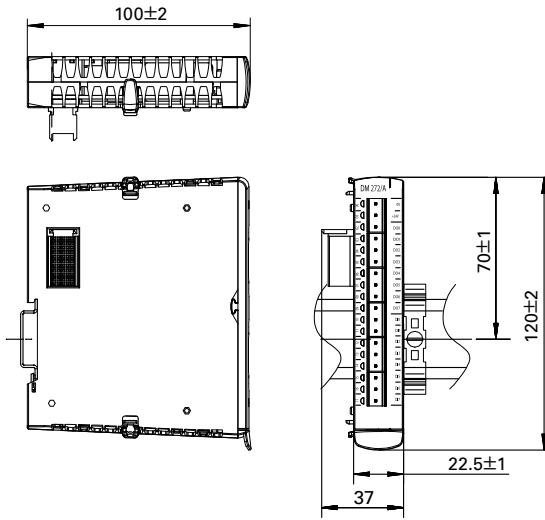
Dimensions (Unit : mm)

I/O module

DM272-A, DM276-A, DI266-A, DO276-A, AM280-A

DI266-B, DO276-B, DI286-A, DO286-A, DO286-B

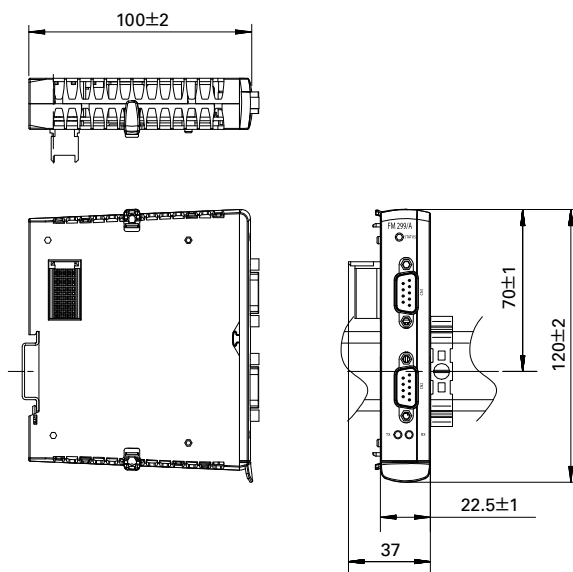
● Option I/O connector (model no.: AL-00591171-02)



*Connector dimensions differ depending on number of pins.
The above has 24 pins.

Fieldbus module, Interface module

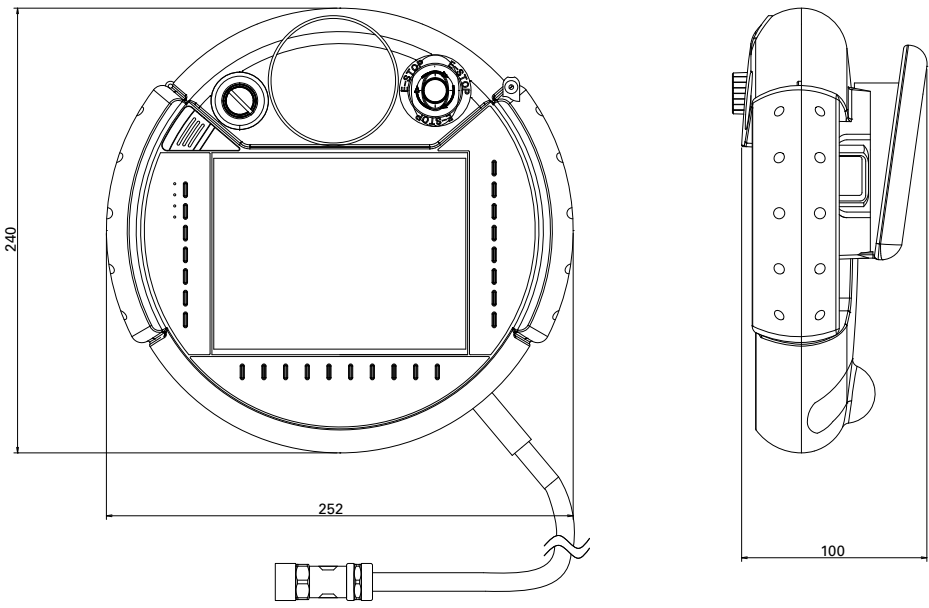
FM299-A, SM210-A, SM230-A



Dimensions (Unit : mm)

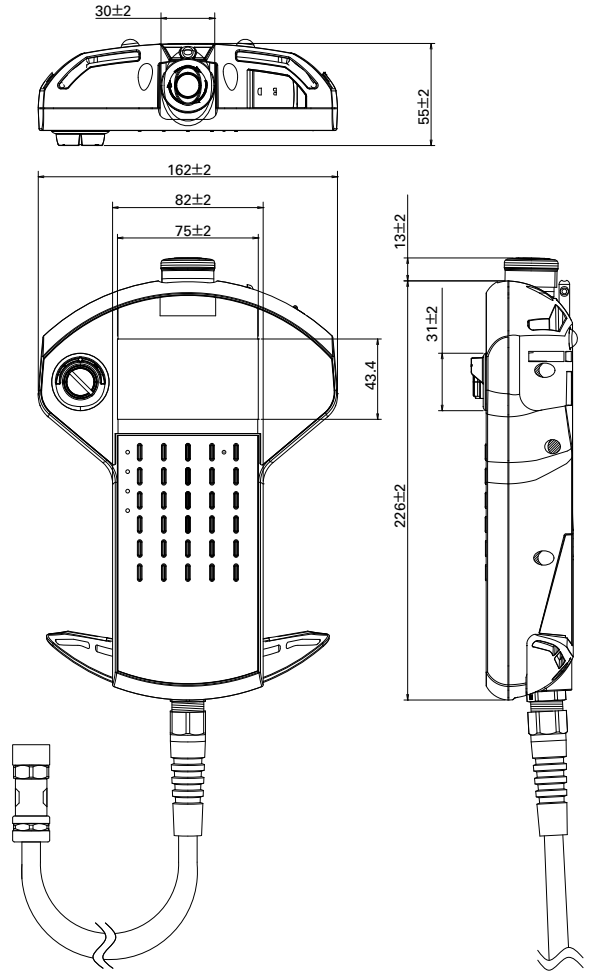
Teaching pendant

TP-C55



Teaching pendant

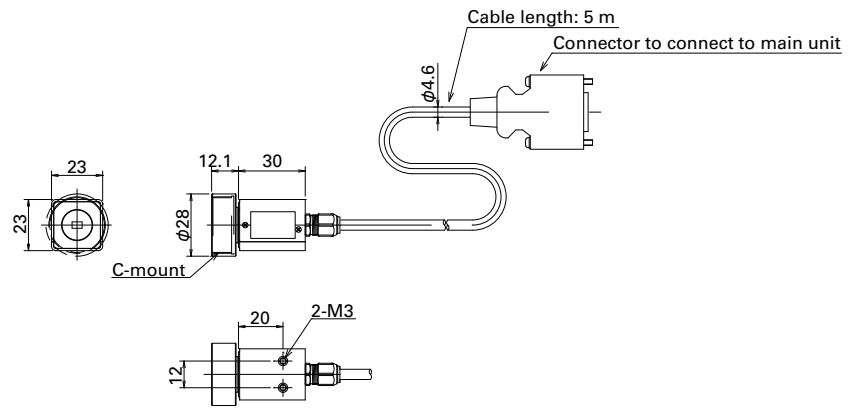
TP-C20



Dimensions (Unit : mm)

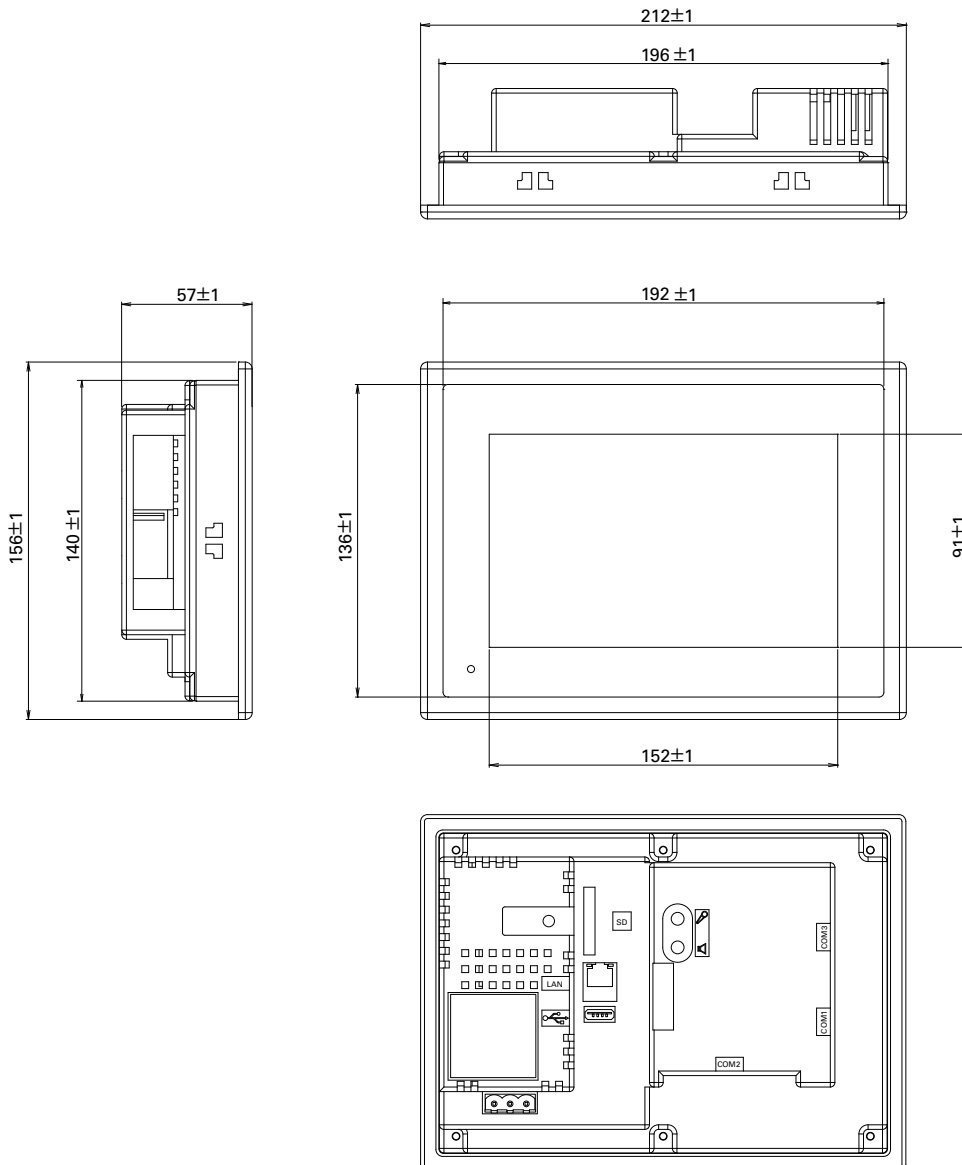
Camera

VS-CMH-MT1



Programmable touch panel

PA-0730BC





■ Eco Products

SANYO DENKI's ECO PRODUCTS are designed with the concept of lessening impact on the environment in the process from product development to waste. The product units and packaging materials are designed for reduced environmental impact. We have established our own assessment criteria on the environmental impacts applicable to all processes, ranging from design to manufacture. Those products that satisfy the criteria are accredited as ECO PRODUCTS.

■ Precautions For Adoption

Cautions

Failure to follow the precautions on the right may cause moderate injury and property damage, or in some circumstances, could lead to a serious accident. Always follow all listed precautions.

Cautions

- Read the accompanying Instruction Manual carefully prior to using the product.
- If applying to medical devices and other equipment affecting people's lives, please contact us beforehand and take appropriate safety measures.
- If applying to equipment that can have significant effects on society and the general public, please contact us beforehand.
- Do not use this product in an environment where vibration is present, such as in a moving vehicle or shipping vessel.
- Do not perform any retrofitting, re-engineering, or modification to this equipment.
- The product presented in this catalog are meant to be used for general industrial applications. If using for special applications related to aviation and space, nuclear power, electric power, submarine repeaters, etc., please contact us beforehand.

*For any question or inquiry regarding the above, contact our Sales Department.

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