SANMOTION

MOTION CONTROLLER

C

With EtherCAT interface

Ver.2

SANYO DENKI

SANMOTION C

MOTION CONTROLLER

EtherCAT®

EtherNet/IP®

LISTED
(IND. CONT. EQ.)
E302733

R-R-SRV-263

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EtherNet/IP™ is a trademark of Open DeviceNet Vendor Association (ODVA).

SANMOTION C S100
MOTION CONTROLLER

Equipped with the industry-trusted high-speed fieldbus EtherCAT interface,
these models are available in two configurations: a high-performance type (Model no. SMC100-A)
for controlling robots and a standard type (Model no. SMC100-B) that
specializes in PTP (Point-to-Point) positioning.
They are ideal for applications such as assembly equipment and conveying machines.

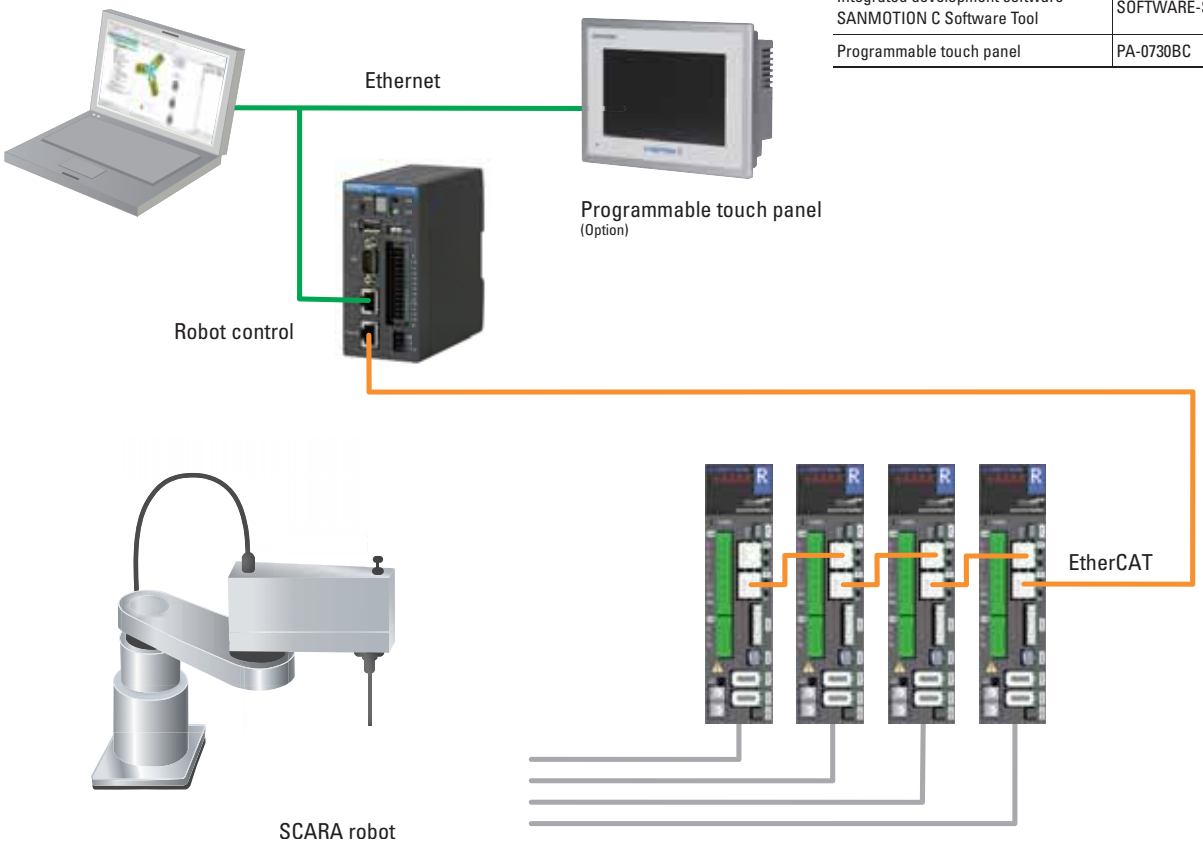
Refer to the following catalogs for AC servo systems and closed-loop stepping systems (Model No.PB) equipped with EtherCAT interface.
Catalogs are available for download from our Catalog Site.

- SANMOTION R 100/200 V General Catalog
- SANMOTION Model No.PB Catalog
- SANMOTION R ADVANCED MODEL 48 VDC Catalog

System Configuration Examples

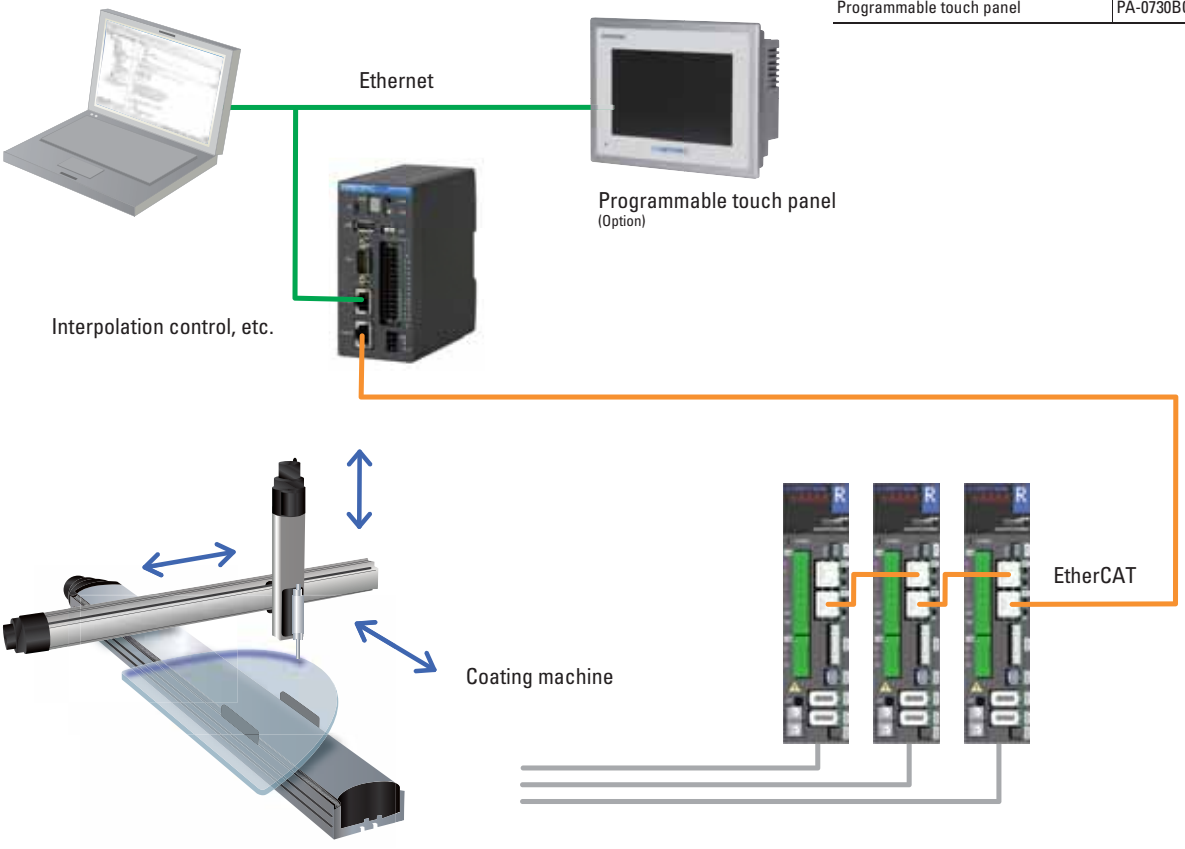
Assembly equipment (Model no. SMC100-A)

Name	Model no.
Motion controller	SMC100-A
Integrated development software SANMOTION C Software Tool	SOFTWARE-SMC100- □□□
Programmable touch panel	PA-0730BC



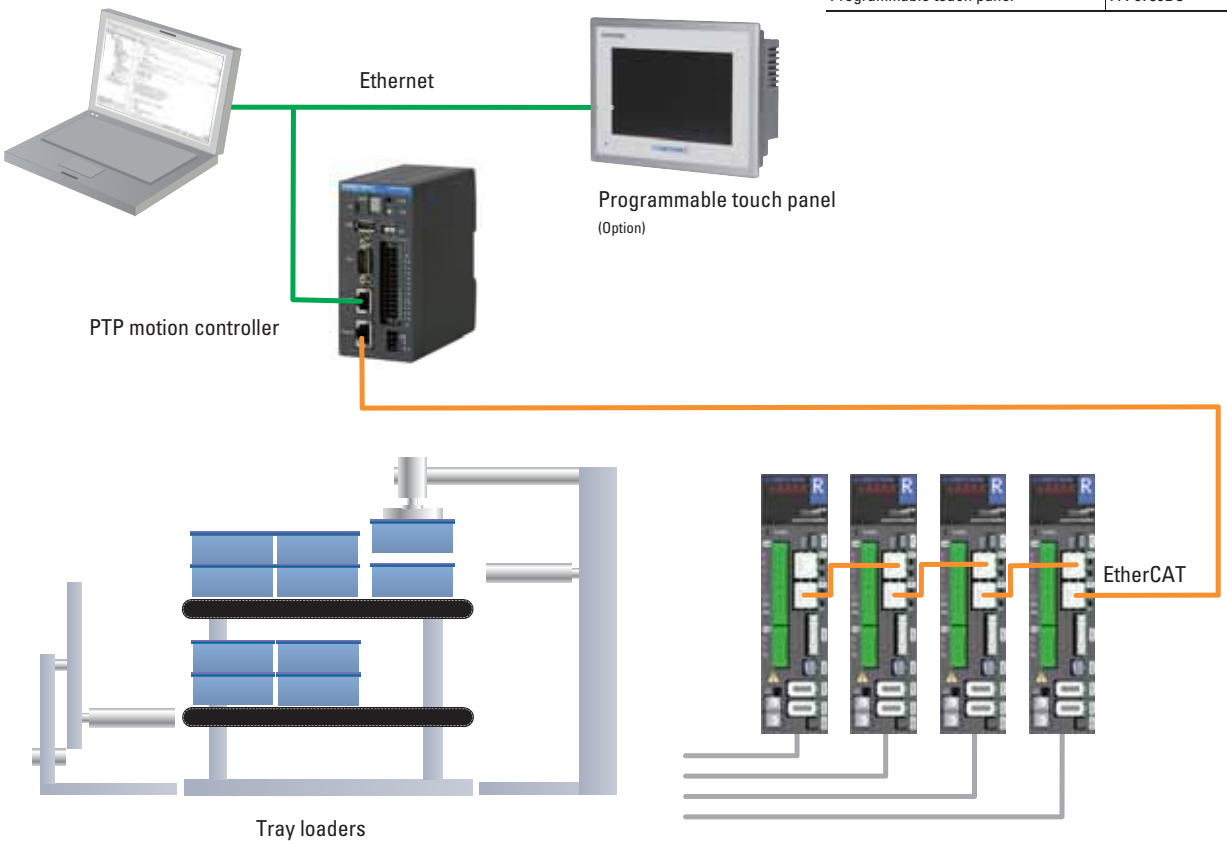
Automatic coating machine (Model no. SMC100-A)

Name	Model no.
Motion controller	SMC100-A
Integrated development software SANMOTION C Software Tool	SOFTWARE-SMC100- □□□
Programmable touch panel	PA-0730BC



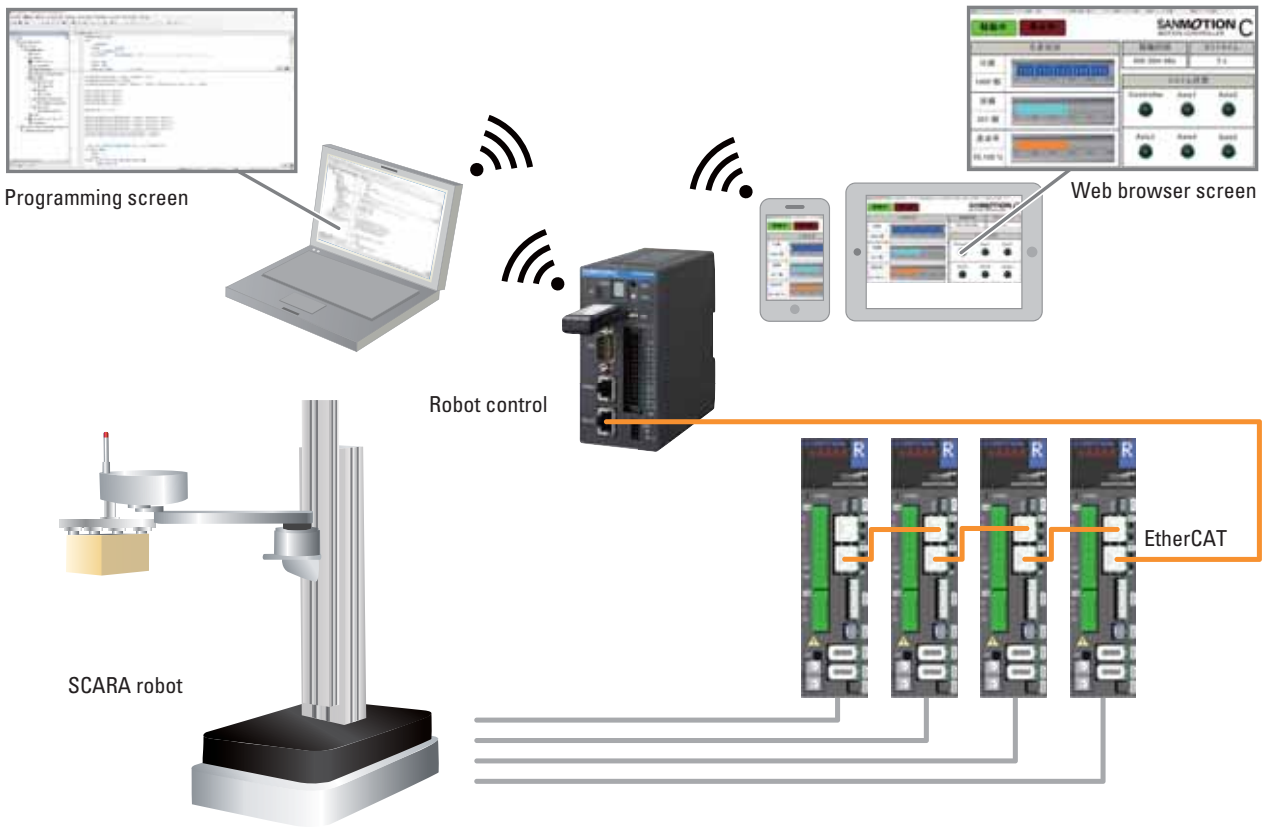
Tray loader (Model no. SMC100-B)

Name	Model no.
Motion controller	SMC100-B
Integrated development software SANMOTION C Software Tool	SOFTWARE-SMC100- □□□
Programmable touch panel	PA-0730BC



SCARA robot moving with automated guided vehicle
(Model no. SMC100-A)

Name	Model no.
Motion controller	SMC100-A
Integrated development software SANMOTION C Software Tool	SOFTWARE-SMC100- □□□
Wireless Adapter	SMC-USBW-01



■ Software and peripherals

Integrated development software SANMOTION C Software Tool

Software features various functions for system development.

■ Programming tool
■ Electronic cam editor
■ Configuration tool
■ Simple HMI (human machine interface) tool
■ Analysis and diagnostic tool

Easily configurable Programmable Touch Panel

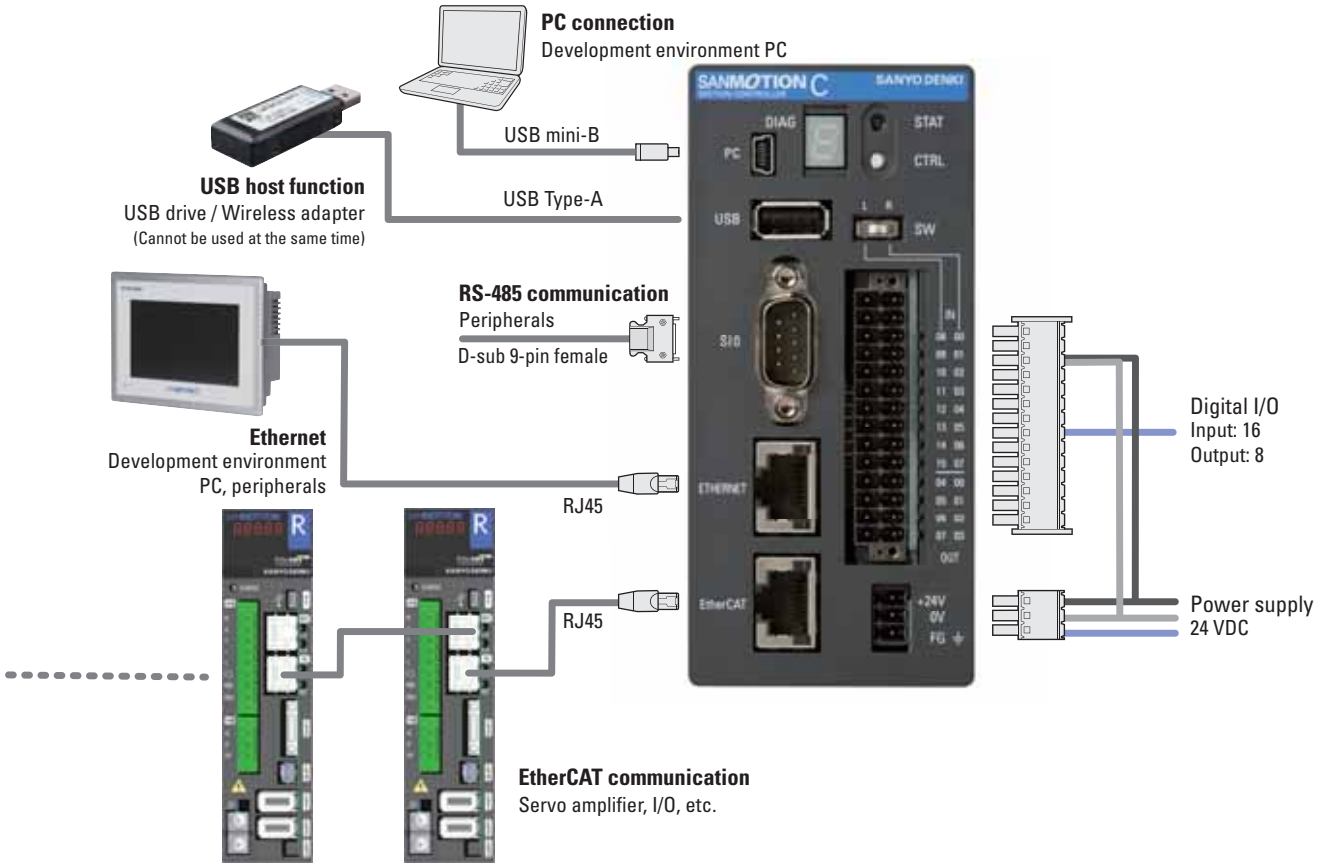
- The touch panel simulation function enables users to check touch panel operation on a PC.
- The touch panel screen interface can be easily configured just by selecting from a set of on-screen elements.
- The high-resolution screen is highly visible and easy to use.

Wireless Adapter adds wireless communication to motion controllers

- Status monitoring and settings of SANMOTION products can be done remotely from smart devices.
- Motion controllers can be connected to a wireless LAN network by simply connecting the adapter to their USB port.
- The adapter can be set for use in various countries.
- Send a license key we provide to motion controllers to turn on wireless capability.

Note: The serial number of the controller is required for issuing the license key.

System Configuration



Specifications

Model no.		SMC100-A	SMC100-B
Interface		EtherCAT (100 Mbps) master function, FoE-compatible	
		Ethernet (10/100/1000 Mbps) protocols (Modbus TCP, OPC-UA)	
		RS-485 (9600 to 115200 bps)	
		USB 2.0 (for memory storage)	
Digital I/O		Digital input: 16 points; rated input voltage: 24 VDC; positive/negative common input	
		Digital output: 8 points; load voltage range: 19.2 to 30 VDC; maximum load current: 0.5 A/point; sink output	
Input power supply	main power supply	Rated voltage: 24 VDC; load voltage range: 19.2 to 30 VDC; Rated current: 0.8 A	
	I/O power supply	Rated voltage: 24 VDC; load voltage range: 19.2 to 30 VDC; Rated current: 20 mA	
Power consumption		19.2 W	
Cooling method		Passive	
Dimensions		55(W) × 120(H) × 110(D) mm	
Mass		300 g	
Max. no. of controllable axes		8	
Control functions		Sequence control Motion control (Electronic cam, electronic gear, linear interpolation, circular interpolation) Robot control (Cartesian coordinate, SCARA, and parallel link robots)	Sequence control Motion control (PTP control)
Network functions		Web visualization	
Control language		Programming languages conforming to international standard (IEC 61131-3) G-code (SMC100-A only)	
Ambient temperature		0 to 55°C	
Storage temperature		-40 to 70°C	
Operation/storage humidity		10 to 95% (non-condensing)	
Vibration resistance		Constant amplitude: 3.5 mm (5 to 8.4 Hz) conforming to JIS B 3502:2011 Constant acceleration: 10 m/s^2 (8.4 to 150 Hz) conforming to JIS B 3502:2011	
Shock resistance		Peak acceleration: 147 m/s^2, duration 11 ms conforming to JIS B 3502:2011	
Operation altitude		2,000 m max.	
Installation location		In control panel	
Overvoltage category		II or lower	
Degree of pollution		2 or lower	

Motion control function

Number of controllable axes	8
Communication cycle	2 to 16 ms
Control system	Position control, speed control, torque control
Acceleration/deceleration profile	Trapezoidal, Sin^2, trapezoidal with jerk limit
Unit for positioning control	Arbitrary (pulse, mm, inch, degree)
Programming language	Complies with IEC 61131-3 IL, ST, LD, FBD, SFC, CFC
Function block	Homing, incremental mode, absolute mode, constant speed mode, electronic cam, electronic gear

Robot control function (Model no. SMC100-A only)

Number of controllable axes	Robot: 4 axes max
Communication cycle	8 to 16 ms
Control system	PTP motion, 3D linear interpolation, 3D circular interpolation
Teaching method	Numeric input
Unit for positioning control	Arbitrary (pulse, mm, inch, degree)
Programming language	Motion function block
Supported robots	Cartesian coordinate (3 axes), SCARA (4 axes), parallel link (4 axes)

EtherNet/IP specifications

Common	Interface	Ethernet (10/100 Mbps) Note: Can be combined with Modbus TCP, etc.
	Communication	Scanner function: Network master Adapter function: Network slave Note: Cannot be used at the same time.
	Node distance	100 m or less
	Topology	Star
	Communication cable	Shielded twisted pair cable, category 5/5e or higher recommended
	Conformance testing	ODVA conformance (Conformance test 16 passed)
Scanner	Maximum number of connectable units	4
	Minimum communication cycle	50 ms
Adapter	Device type	12
	Maximum data length	Output: 508 bytes, input: 504 bytes (Recommended output: 128 bytes, input: 128 bytes)
	Minimum communication cycle	50 ms
	Supported data types	BYTE (1 byte) WORD (2 bytes) DWORD (4 bytes) REAL (4 bytes) Big (A collection of BYTE type data with the maximum data length)

Software

■ Connector set

Model no.	Application	Manufacturer part no.
AL-01005600-01	Power connector	Phoenix Contact K.K. FMC 1,5/3-ST-3,5
AL-01005600-02	I/O connector	Phoenix Contact K.K. DFMC 1,5/14-ST-3,5-LR

■ USB cable

Model no.	Application
AL-00896515-01	USB cable (1 m)
AL-00896515-02	USB cable (2 m)

■ Integrated development software SANMOTION C Software Tool

Model no.	Application
SOFTWARE-SMC100- □□□	Integrated development software for sequence/motion/robot control

Peripherals

■ Programmable touch panel

Model no.		**PA-0730BC**
Dimensions		212(W) × 156(H) × 57(D) mm
Mass		Approx. 1200 g
Rated power supply		24 VDC / 1.1 A
Screen size		7 inch
Resolution		800(W) × 480(H) pixel
Display type		Wide TFT touch screen
Color		65536
Protection grade		Front panel: IP65; rear panel: 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% (non-condensing)

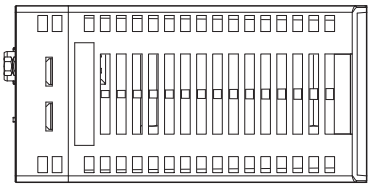
■ Wireless Adapter

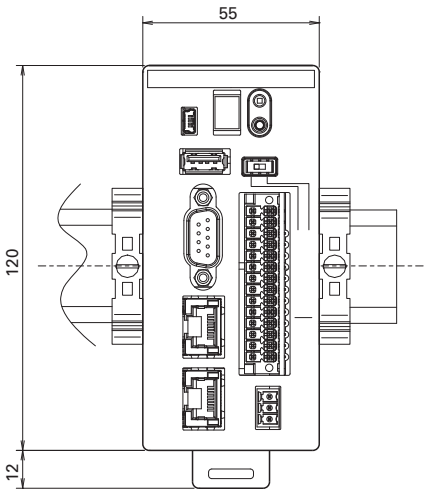
Model no.			**SMC-USBW-01**
Basic specifications	Dimensions		21.8 (W) × 11.5 (H) × 56.5 (D) mm
	Mass		Approx. 10 g
	Rated voltage		5 VDC
	Interface		USB 2.0 Type A
	Use with		Motion controllers (SANMOTION C S100) only
	Operating environment	Ambient temperature	0 to 55°C
		Ambient humidity	10 to 95% (non-condensing)
Functions	Wireless standard		Compliant with IEEE802.11b / IEEE802.11g / IEEE802.11n
	Operating frequency band		2.4 GHz band
	Channels		1 to 13
	Maximum communication speed		72.2 Mbps
	Wireless LAN mode		Access point mode (Acting as a master network station)
			Station mode (Acting as a slave network station)
	Maximum number of connectable units		3 (in access point mode)
	Security		WPA2-PSK (AES)
Applicable regions	Japan		Technical Standard Conformity Certification, VCCI
	Europe		CE (RE Directive, RoHS2)
	North America		FCC, ISED
	China		SRRC
	Taiwan		NCC

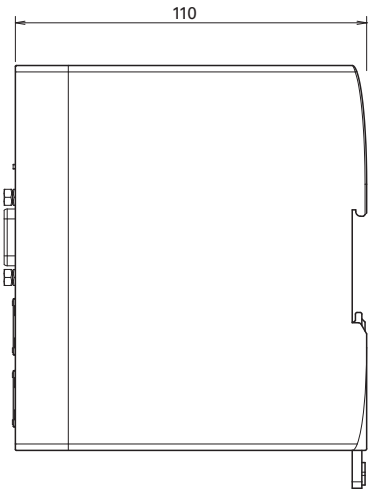
Dimensions [Unit: mm]

Motion controller

Model no.: SMC100-A, SMC100-B

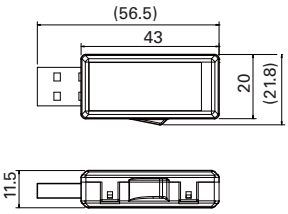






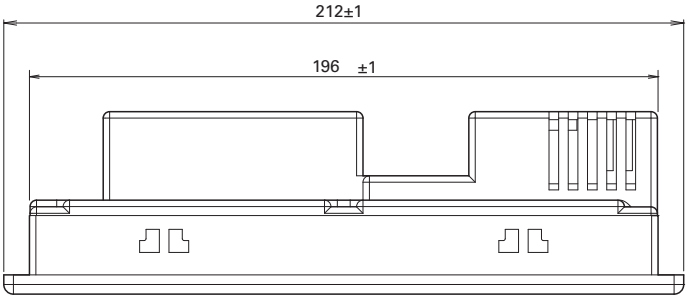
■ Wireless Adapter

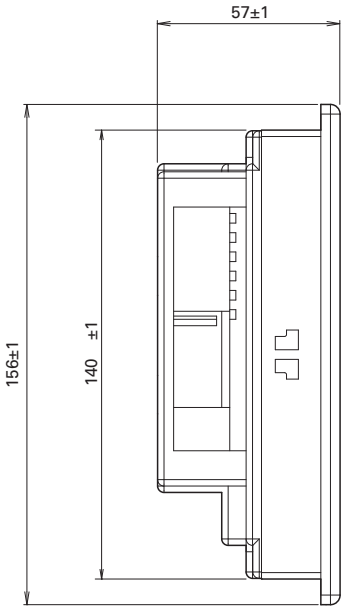
Model no.: SMC-USBW-01

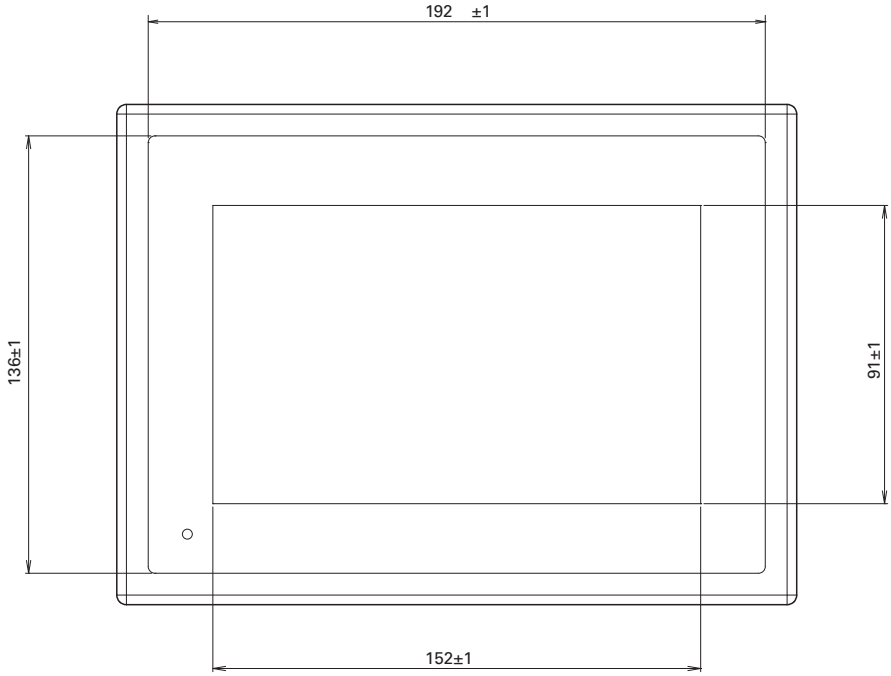


Programmable touch panel

Model no.: PA-0730BC







MEMO

ECO PRODUCTS

■ 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.

Notes Before Purchase

- The products in this catalog are designed to be used with general industrial devices. Read the accompanying Instruction Manual carefully prior to using the product.
- Do not use this product in an environment where vibration is present, such as in moving vehicles or shipping vessels.
- Do not perform any retrofitting, re-engineering, or modification to the product.

Please contact us beforehand if you intend to use this product in the following applications.

- Medical equipment that may have an effect on human life
- Systems or equipment that may have a major impact on society or on the public
- Special applications related to aviation and space, nuclear power, electric power, submarine repeaters, etc.

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