

SmartX Living Space Sensors



Note: A subset of models shown.

Product Description

SmartX sensors are a family of living space sensors for use with MP and RP SmartX IP controllers that use the EcoStruxure Building Operation user interface. These sensors use an RJ-45 sensor bus that provides communication and power from the SmartX IP controller. For quick installation, up to four SmartX sensors may be connected to each SmartX IP controller through the RJ-45 sensor bus using Cat 5/6 cable (22 to 26 AWG). A Bluetooth® adapter is available for commissioning and service. It is temporarily connected to installed communicating sensors and allows for quick setup and configuration. The Bluetooth adapter communicates to upload devices (smart phone, laptop, table, etc.) with the Living Space Sensor EcoStruxure Building Operation app installed via USB or Bluetooth communications.

SmartX living space sensors are modular and are ordered in two parts: the sensor base and the cover. Four SmartX communicating sensor base models are available that can be paired with any SmartX cover model. CO₂, Relative Humidity, and Temperature sensor base options provide an efficient, cost effective solution for living space air quality and comfort needs. Covers are available with a 61 mm (2.4") backlit color touchscreen and a three button non-display version for override and setpoint. Blank covers with no user interface are also available. All modular cover variants are available with and without passive infrared occupancy sensors.

Two complete sensor/cover combination model types are available:

- Temperature-only with LCD display. Communicating with three button cover. This is a low cost temperature sensor with a basic display.
- A two-wire, resistive-only, non-communicating temperature sensor is offered for a low cost conformance part. This uses an I/O port on the controller.

Combination models come with a sensor base and cover and are available in medium matte white, optimum glass white and optimum glass black. Combination units have the same form

factor as the modular sensor bases and covers of the same housing type. Combination units will not work with other covers.

SmartX living space sensors measure the levels of CO₂ (if equipped), RH (if equipped), and temperature of air in a living space application. The CO₂ sensor operates within accuracy specifications for an interval of two years and can be field calibrated.

Features

- Medium matte white housing or optimum glass panel housing available in white or black
- 61 mm (2.4") backlit color touchscreen cover available
- Basic LCD, three button with temperature available
- Digital temperature indication (selectable for 0.1 or 1 degree display resolution of °F or °C).
- Digital humidity indication (selectable for 0.1 or 1% RH display resolution)
- Long-life humidity sensing element with excellent resistance to contamination and condensation
- Digital CO₂ indication (0 to 2000 ppm display resolution)
- Field calibratable non-dispersive infrared CO₂ sensor
- Pushbutton override capabilities allow occupants to switch to timed occupied mode for after hours operation
- Displays selected system values such as setpoints, outdoor air temperature, and operating mode
- Touchscreen includes light and blind control functionality, for use with RP-x controllers with light/blind modules
- Configurable to show only setpoint temperature rather than actual temperature
- Provides the ability to change operating modes
- Passive Infrared (PIR) occupancy sensor covers available
- Directly connects to the sensor bus of the MP Series controller with EcoStruxure Building Operation software version 2.0 or greater
- Sensor bus provides power and communication via RJ-45 over Cat 5/6 cable (22 to 26 AWG)

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Specifications

CO₂ Sensor	
Sensor type	Non-dispersive infrared (NDIR), diffusion sampling
Output range	0 to 2000 ppm
Accuracy	±30 ppm ±2% of measured value
Repeatability	±20 ppm ±1% of measured value
Response time	<60 seconds for 90% step change
RH Sensor	
HS sensor	Thin-film capacitive
Accuracy	±2% from 10 to 80% RH @ 25°C (77 °F)
Hysteresis	1.5% typical
Linearity	Included in accuracy specification
Stability	±1% @ 20°C (68 °F) annually for 2 years
Output range	0 to 100% RH
Temperature coefficient	±0.1% RH/°C above or below 25 °C (77 °F) typical
Temperature Sensor (Non-communicating Models)	
Sensor type	10K Type 3 thermistor
Accuracy	±0.2 °C (±0.4 °F) typical
Resolution	0.1 °C (0.2 °F)
Output range	0 to 50 °C (32 to 122 °F)
Temperature Sensor (Communicating Models)	
Accuracy	±0.2 °C (±0.4 °F) typical
Occupancy Sensor	
Sensor type	Passive infrared (PIR)
Light and Blind Control	
Number of light control zones	1 manually controlled 4 configurable in scenes
Number of blind control zones	1 manually controlled 4 configurable in scenes
User interface	Any SmartX cover with touchscreen
Communication	Sensor Bus on RP-x models with light/blind modules
Preconfigured scenes	Configurable via EcoStruxure Building Operation software
Light control	On/off/dimming
Blind control	Blind open /close/adjust Louver open/close/adjust
Operating Environment	
Operating temperature	0 to 50 °C (32 to 122 °F)
Operating humidity range	0 to 95% RH, non-condensing
Housing material	High impact ABS plastic Flammability rating UL 94 V-0
Input power	2 watts, 24 Vdc over sensor bus

Wiring Terminals

Non-communicating models	Screw, 2-wire, 18-24 AWG
Communicating models	RJ-45 female sensor bus
Regulatory Information	
Agency approvals	UL 916, European conformance CE: EN61000-6-3 EN61000 Series - industrial immunity standard FCC Part 15 Class B, REACH, RoHS, Green Premium, RCM (Australia), ICES-003 (Canada), EAC (Russia)

Software Specifications

Using the eCommission Bluetooth Adapter to Configure

- Custom field-configurable sensor displays
- Auto-ranging of displayed values
- Occupant command capabilities
- Adjustable minimum/maximum limit setpoint values
- Controller driven, automatically configured, customized display/command values

Communications

SmartX Sensor Bus

SmartX sensor bus communications wiring provides power and communication interface to the SmartX MP Series controllers. SmartX sensor bus connects up to four sensor devices per controller using RJ-45 connectors and Cat 5/6 cable (22 to 26 AWG)*. The maximum total length of the SmartX sensor bus is 61 m (200 ft.).

*Due to power constraints, limitations exist for the number of sensors the Sensor Bus can support. For specific sensor combinations supported, see the Sensor Bus Configuration Calculator on the last page of this document.

Multiple Housing Finishes Available

Optimum Housing

- Higher-end aesthetic suitable for new construction and remodels
- Available for all SmartX cover types
- Glass touch panel
- Available in white or black



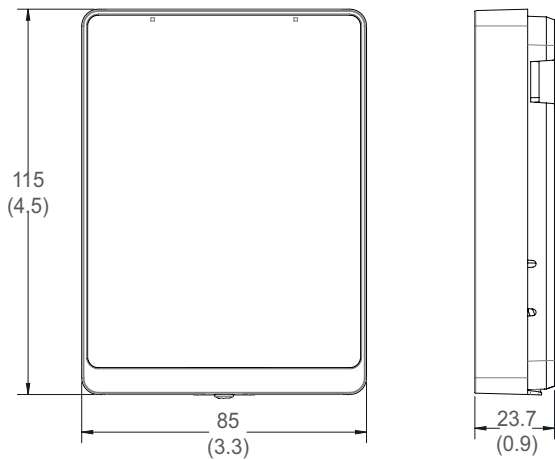
Medium Housing

- Standard aesthetic suitable for schools, hospitals, municipal facilities
- Available for all SmartX cover types (except off-screen light/blind control buttons)
- Matte white finish

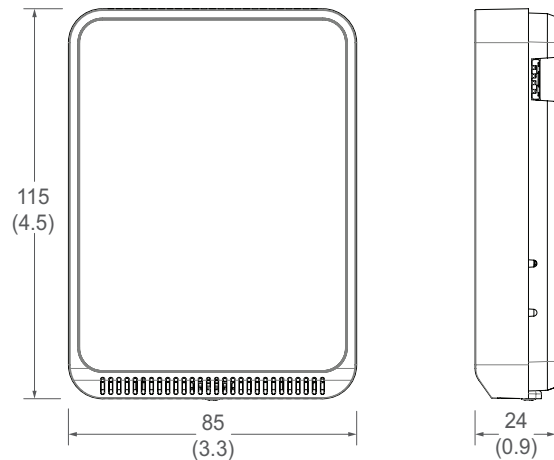


Dimensions mm (in.)

Optimum Housing



Medium Housing



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Available Products

SmartX Sensor Bases

Model Number	Temp	RH	CO ₂	Cover	SmartX System Bus	Resistive Only (10K T3)
SXWSBTXXXSXX	X			Not Included	X	
SXWSBTHXSXX	X	X		Not Included	X	
SXWSBTXCXSXX	X		X	Not Included	X	
SXWSBTHCXsXX	X	X	X	Not Included	X	
SXWSATXXXSLX*	X			Included - Medium White	X	
SXWSATXXXSLW*	X			Included - Optimum White	X	
SXWSATXXXSLB*	X			Included - Optimum Black	X	
SLASXXX*	X			Included - Medium White		X
SLAWXXX*	X			Included - Optimum White		X
SLABXXX*	X			Included - Optimum Black		X

*Combination models include base and cover.

SmartX Covers

Model Number	61mm (2.4") Color Touchscreen with Light & Blind Control	Override	Setpoint	Off-Touchscreen Light & Blind Control Buttons	Off-Touchscreen Light Control Buttons	Occupancy Sensor (PIR)	Housing Finish
SXWSCDXSELXX	X	X	X				Medium, White
SXWSC3XSELXX		X	X				Medium, White
SXWSCBXSELXX							Medium, White
SXWSCDPSELXX	X	X	X			X	Medium, White
SXWSC3PSELXX		X	X			X	Medium, White
SXWSCBPSELXX						X	Medium, White
SXWSCDXSELXW	X	X	X				Optimum, White
SXWSC3XSELXW		X	X				Optimum, White
SXWSCBXSELXW							Optimum, White
SXWSCDPSELXW	X	X	X			X	Optimum, White
SXWSC3PSELXW		X	X			X	Optimum, White
SXWSCBPSELXW						X	Optimum, White
SXWSCDXSELXB	X	X	X				Optimum, Black
SXWSC3XSELXB		X	X				Optimum, Black
SXWSCBXSELXB							Optimum, Black
SXWSCDPSELXB	X	X	X			X	Optimum, Black
SXWSC3PSELXB		X	X			X	Optimum, Black
SXWSCBPSELXB						X	Optimum, Black
SXWSC2XSELXW	X	X	X		X		Optimum, White
SXWSC4XSELXW	X	X	X	X			Optimum, White
SXWSC2PSELXW	X	X	X		X	X	Optimum, White
SXWSC4PSELXW	X	X	X	X		X	Optimum, White
SXWSC2XSELXB	X	X	X		X		Optimum, Black
SXWSC4XSELXB	X	X	X	X			Optimum, Black
SXWSC2PSELXB	X	X	X		X	X	Optimum, Black
SXWSC4PSELXB	X	X	X	X		X	Optimum, Black

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Sensor and Cover Combination Models

Communicating Temperature Only User Interface with LCD

- Configurable through the eCommission Bluetooth Adapter or EcoStruxure Building Operation software
- LCD displays temperature, heating, cooling status
- Setpoint and override



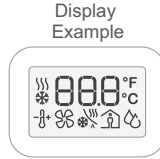
SXWSATXXXSLW



SXWSATXXXSLB



SXWSATXXXSLX



Display Example

Non-communicating Temperature Only, No User Interface

- 2-wire resistive output
- 10K Type 3 thermistor
- Uses I/O port on controller



SLAWXXX



SLABXXX



SLASXXX

Cover Variants - Communicating Sensors

Blank, No User Interface

- Configurable through the eCommission Bluetooth Adapter or EcoStruxure Building Operation software
- Occupancy sensor version available



SXWSCBXSELXW



SXWSCBPSELXW
with Occupancy
Sensor



SXWSCBXSELXB



SXWSCBPSELXB
with Occupancy
Sensor



SXWSCBXSELXX



SXWSCBPSELXX
with Occupancy
Sensor

Cover Variants - Communicating Sensors (cont.)

3-Button User Interface, Setpoint and Override

- Configurable through the eCommission Bluetooth Adapter or EcoStruxure Building Operation software
- Setpoint and override buttons
- Halo indicates heating and cooling status
- Occupancy sensor version available



SXWSC3XSELXW



SXWSC3PSELXW
with Occupancy
Sensor



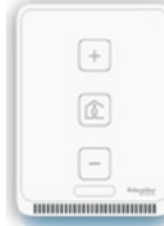
SXWSC3XSELXB



SXWSC3PSELXB
with Occupancy
Sensor



SXWSC3XSELXX



SXWSC3PSELXX
with Occupancy
Sensor

Touch Screen User Interface

- Configurable through the eCommission Bluetooth Adapter or EcoStruxure Building Operation software
- 61 mm (2.4") color touchscreen
- CO₂, RH, temperature, setpoint and override displayed
- Heating, cooling, ecomode status
- Light and blind control for use with RP-x with light and blind modules
- Occupancy sensor version available



SXWSCDXSELXW



SXWSCDPSELXW
with Occupancy
Sensor



SXWSCDXSELXB



SXWSCDPSELXB
with Occupancy
Sensor

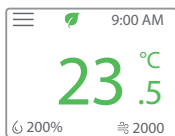


SXWSCDXSELXX

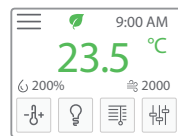


SXWSCDPSELXX
with Occupancy
Sensor

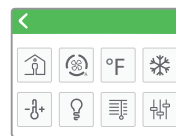
Display Examples



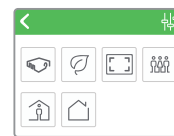
HVAC Configuration



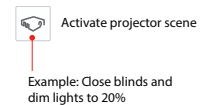
Up to 4 Configurable
Buttons on Main Menu



Sub-menu Configurable with
up to 8 Buttons

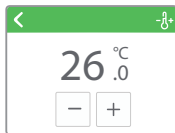


Configurable Preset
Scenes

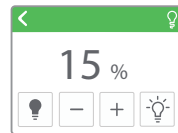


Configured Scene
Example

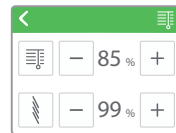
Setpoint Examples



Temperature



Lighting



Blind and Louver



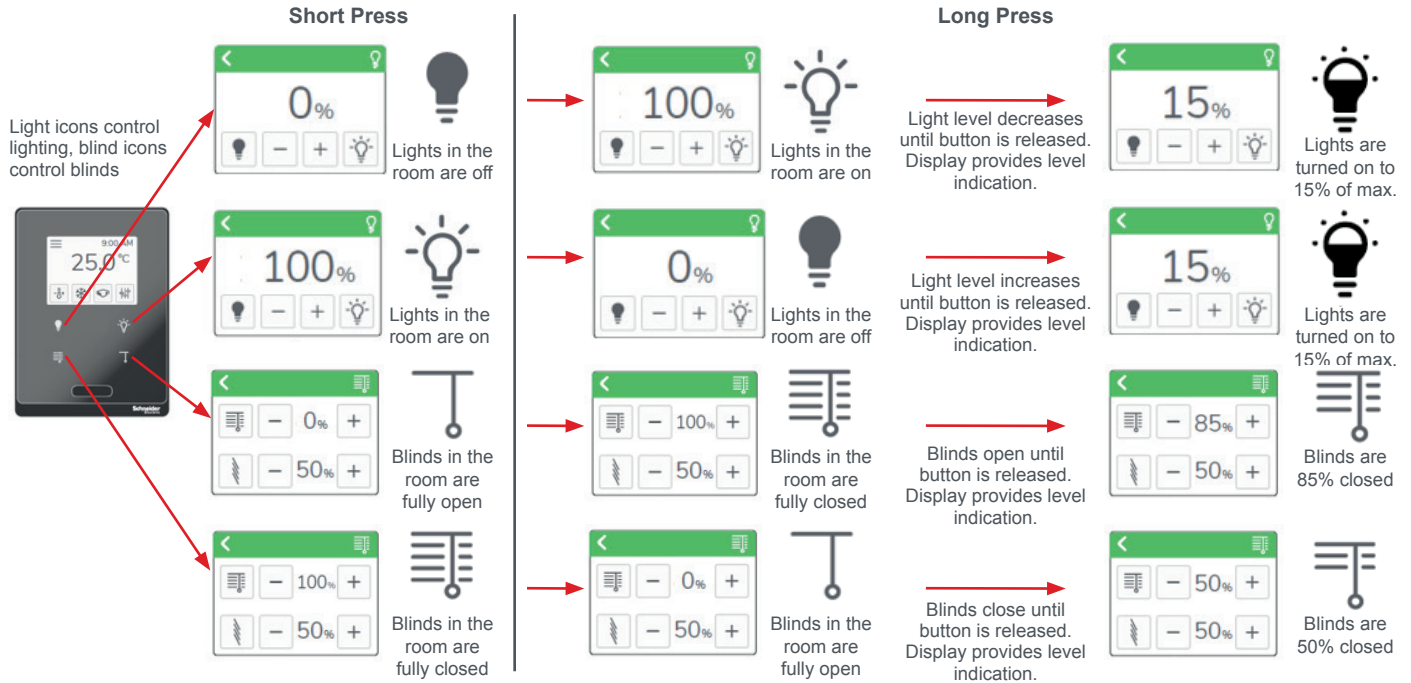
Available Scenes

Touch Screen User Interface with Off-screen Light and Blind Control

- Configurable through the eCommission Bluetooth Adapter or EcoStruxure Building Operation software
- 61 mm (2.4") color touchscreen
- CO₂, RH, temperature, setpoint and override displayed
- Heating, cooling, ecomode status
- Light and blind control for use with RP-x with light and blind modules
- Occupancy sensor version available
- Two glass touch capacitive button version for lights
- Four glass touch capacitive button version for lights and blinds



Display Examples: Same Functionality as Standard plus Off-Screen Light/Blind Capacitive Buttons



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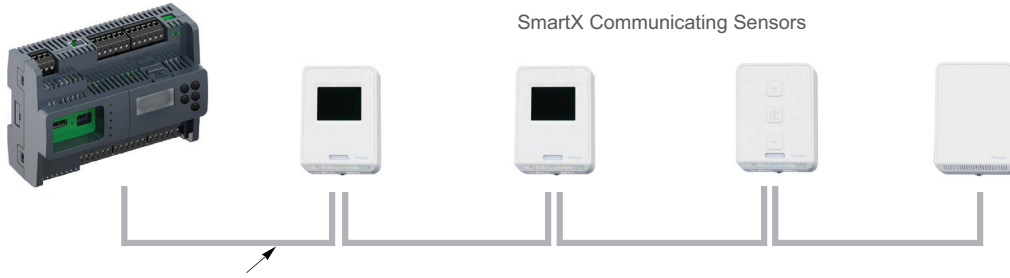
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Architecture

MP/RP Controller and Sensor Bus with Communicating Sensors

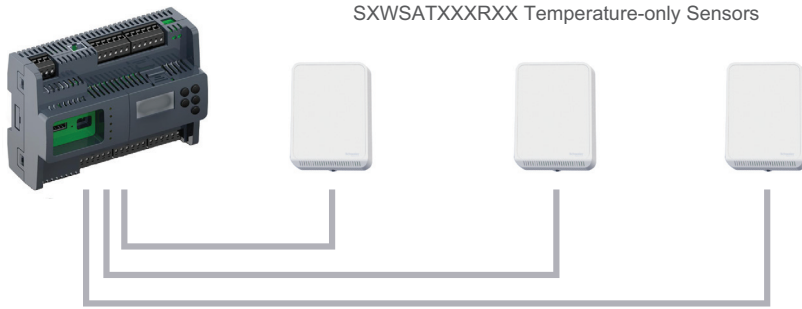
MP/RP Controller



Cat 5/6 cable (22 to 26 AWG) terminated via RJ-45.
 61 m (200 ft.) total maximum length.
 Up to four communicating sensors on sensor bus. For specific combinations of sensors supported by the Sensor Bus, see the Sensor Bus Configuration Calculator on the last page of this document.

MP/RP Controller and Non-communicating Sensors

MP/RP Controller

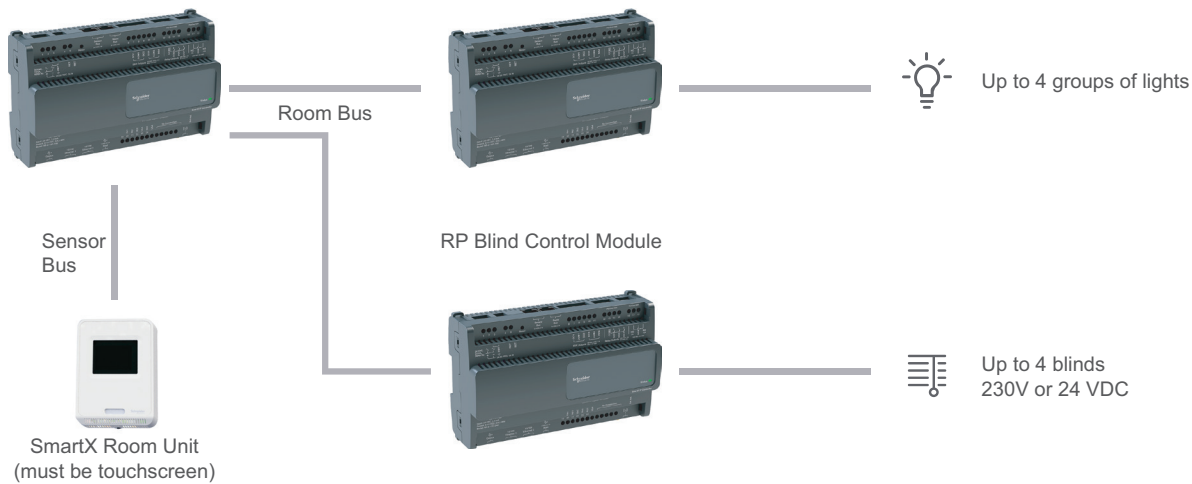


Each sensor uses an I/O port on the controller.
 Maximum number of inputs varies by controller type.

RP Controller, Light and Blind Control Modules with Communicating Sensor

RP Controller

RP Lighting Control Module



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Sensor Bus Configuration Calculator

Calculate Power/mW to Validate Sensor Bus Configuration

Add power/mW for all covers, combination units and bases to be used on a single sensor bus for total sensor bus wattage. The sensor bus will support current of up to 2000 mW. Device combinations totalling more than 2000 mW will not be supported on the sensor bus.

Sensor Bus Power Table

Description	Model Number	Power/mW
Sensor Base, Temp	SXWSBTXXXSXX	90
Sensor Base, Temp, Humidity	SXWSBTHXXSXX	90
Sensor Base, Temp, CO ₂	SXWSBTCXSXX	490
Sensor Base, Temp, Humidity, CO ₂	SXWSBTHCXsXX	490
Resistive 10K T3 Combination Sensors	SXWSATXXXRXX	0
	SXWSATXXXRXB	0
	SXWSATXXXRXW	0
Temp with LCD, 3 Button Combination Sensors	SXWSATXXXSLX	80
	SXWSATXXXSLB	80
	SXWSATXXXSLW	80
3 Button Covers with Occupancy	SXWSC3PSELXB	210
	SXWSC3PSELXW	210
	SXWSC3PSELXX	210
3 Button Covers	SXWSC3XSELXB	190
	SXWSC3XSELXW	190
	SXWSC3XSELXX	190
Blank Covers with Occupancy	SXWSCBPSELXB	20
	SXWSCBPSELXW	20
	SXWSCBPSELXX	20
Blank Covers	SXWSCBXSELXB	0
	SXWSCBXSELXW	0
	SXWSCBXSELXX	0
Touchscreen Covers with Occupancy	SXWSCDPSELXB	210
	SXWSCDPSELXW	210
	SXWSCDPSELXX	210
	SXWSC2PSELXB	210
	SXWSC2PSELXW	210
	SXWSC4PSELXB	210
	SXWSC4PSELXW	210

Sensor Bus Power Table (cont.)

Description	Model Number	Power/mW
Touchscreen Covers	SXWSC2XSELXB	190
	SXWSC2XSELXW	190
	SXWSC4XSELXB	190
	SXWSC4XSELXW	190
	SXWSCDXSELXB	190
	SXWSCDXSELXW	190
	SXWSCDXSELXX	190
eCommission Bluetooth Adaptor	SXWBTAECXX10001*	300

*The eCommission Bluetooth Adapter is used temporarily for commissioning and servicing only.