

azbil

Single Loop Controller

Model C3A/C3B/C1A

Model C2A/C2B



From installation to maintenance,
reduces workload

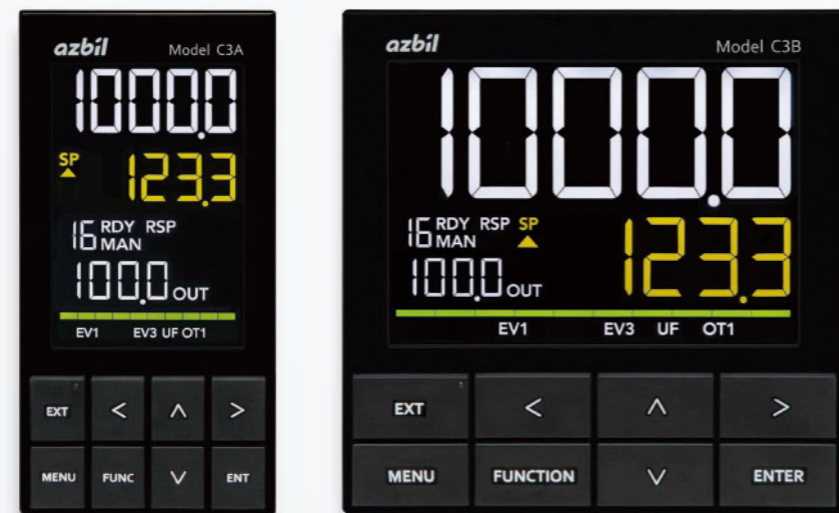


From standard to high-spec models, it meets a variety of needs.

High-Spec Model

High-spec model pursuing high functionality and high accuracy

- ±0.1% RD input accuracy
- 25 ms sampling cycle
- CT/Micro-CT/VT AUX current/voltage
- Extended memory Screwless terminal
- Position proportional
- RSP (remote SP)



Model C3A
48 x 96 mm (W x H)

Model C3B
96 x 96 mm (W x H)

Compact Model

Compact model pursuing high accuracy

- ±0.1% RD input accuracy
- 25 ms sampling cycle
- CT/Micro-CT/VT AUX current/voltage
- Extended memory Screwless terminal



Model C1A
48 x 48 mm (W x H)

Standard Model

Standard model pursuing easy handling

- ±0.2% FS input accuracy
- 50 ms sampling cycle
- CT AUX current



Model C2A
48 x 96 mm (W x H)

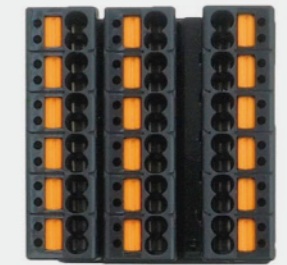
Model C2B
96 x 96 mm (W x H)

Design and Installation

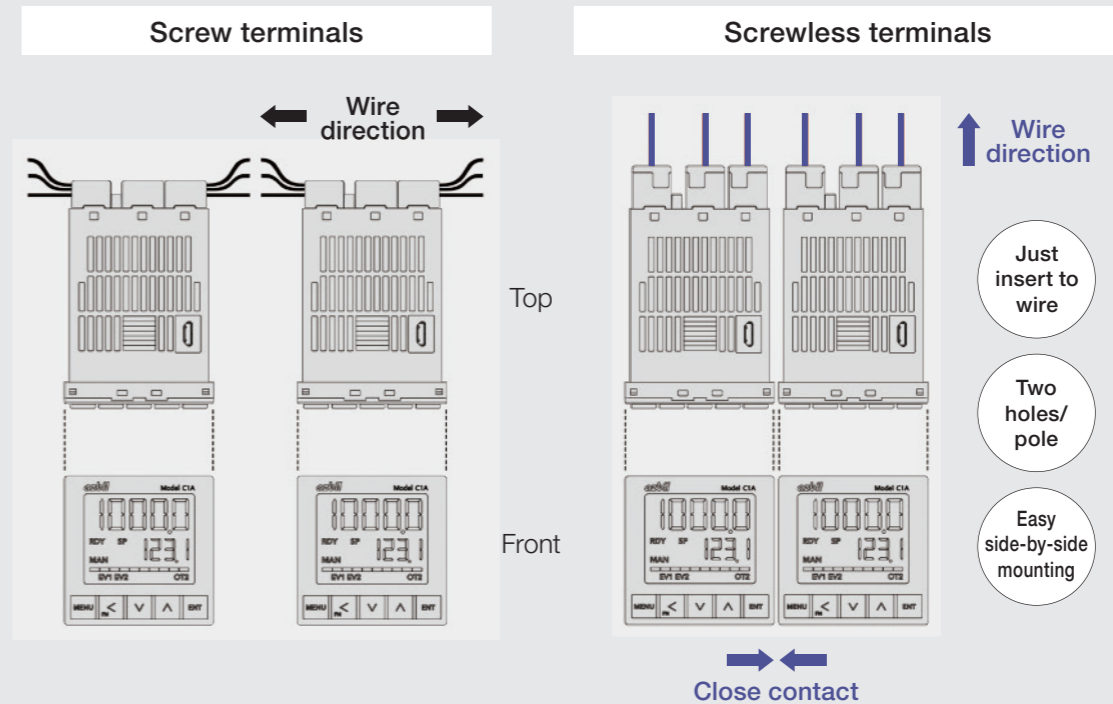
C3A/C3B **C1A** **C2A/C2B**

Easy installation, no-tools wiring

Screwless terminal block models can also be ordered. With spring terminals, you can complete the wiring simply by inserting ferrule connectors. In addition, the terminals have two holes per pole, which facilitates crossover wiring for the power supply, RS-485 communication, and event output, significantly reducing the man-hours for wiring. Also, wires can be pulled to the back for improved workability and more efficient layout when units are mounted side by side.



Back of the screwless terminal block of model C1A



C3A/C3B **C1A** **C2A/C2B**

Easy connection with PLC link function

Equipped with a PLC link, it easily establishes data communication with the PLC without the need for a communication converter or programming. You can complete setup just by using the smart loader package, saving you time and engineering effort.

Supported protocol	Connectable model examples
Mitsubishi/QnA-compatible 3C frame model 4	MELSEC iQ-R, MELSEC Q from Mitsubishi Electric
Omron FINS (host link)	CJ2, CP2 from Omron
KEYENCE protocol mode 4	KV-7000/8000 from Keyence
Modbus™/RTU	KV-NANO from Keyence S7-1200 from Siemens AG



The labels on the right indicate which models support each function.

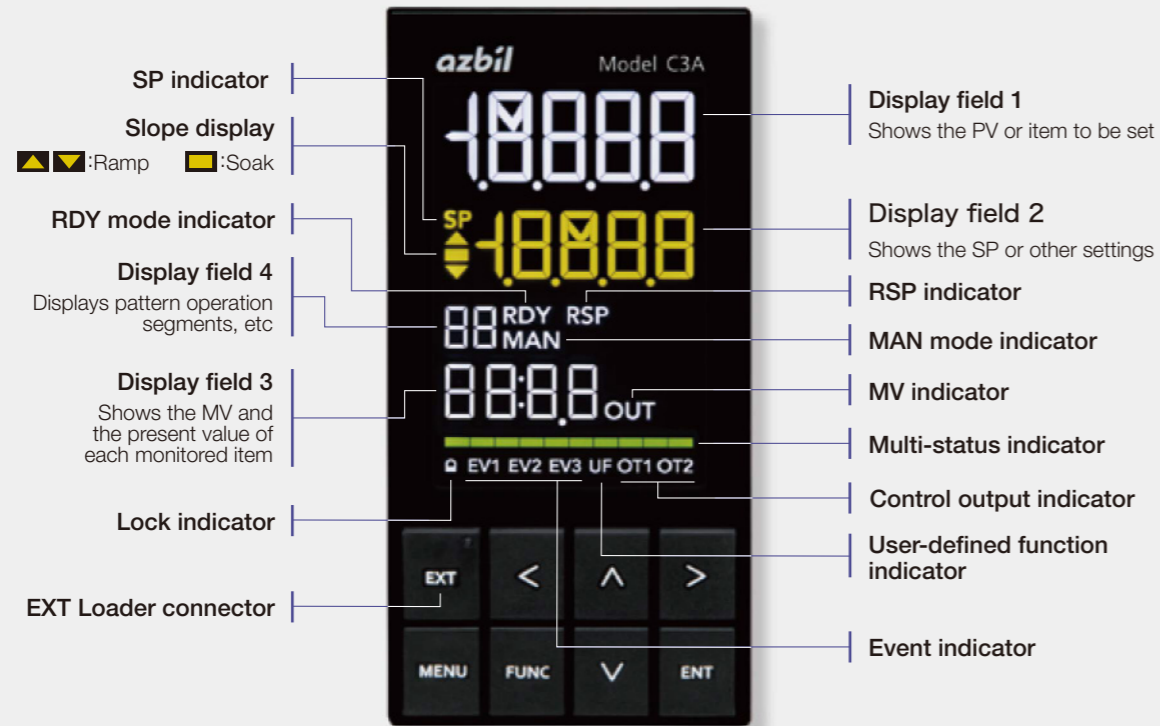
C3A/C3B : Model C3A/C3B **C1A** : Model C1A **C2A/C2B** : Model C2A/C2B

Operation and Management

C3A/C3B C1A C2A/C2B

Large, easy-to-read LCD screen

The large LCD screen can display a 4.5-digit number (-19999 to 19999).
With the multi-status indicator, status can be seen at a glance, even from a distance.



<Actual size>
48 × 96 mm (W × H)

*Some items may not be displayed depending on the model.

C3A/C3B C1A C2A/C2B

Pattern operation for process-optimized operation

Equipped with a pattern operation function of up to 16 patterns and 16 segments.* A PID set No., guaranteed soak, and segment event can be specified for each segment. The power loss recovery function restarts the device once power is restored, continuing from the pattern number, segment number, remaining number of cycles, and segment elapsed time used before the power outage. The slope display shows status of the ramp and soak. In addition, models C3A/C3B can also display the number of the pattern under operation, and the remaining time on the MS indicator.

*Models C3A/C3B

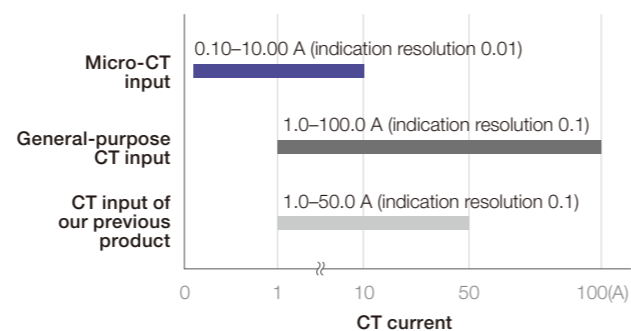
Model	Standard	With extended data memory
C3A/C3B	1 pattern, 16 segments	16 patterns, 16 segments
C2A/C2B		8 patterns, 16 segments
C1A		

C3A/C3B C1A C2A/C2B

Micro-CT measurement detects heater disconnection

By selecting a model with general-purpose CT inputs (1.0–100.0 A)*1 or micro-CT inputs (0.10–10.00 A), you can detect disconnection and measure AC current for a wide range of heater capacities.

*1. Models C2A/C2B support general-purpose CT input only.
*2. By measuring effective (RMS) values, the heater current can be detected even from a waveform deformed by a thyristor.

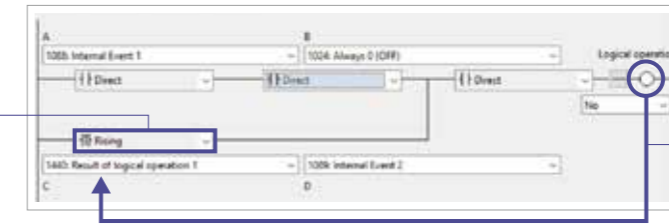


C3A/C3B C1A C2A/C2B

More efficient input/output signals with logical operations

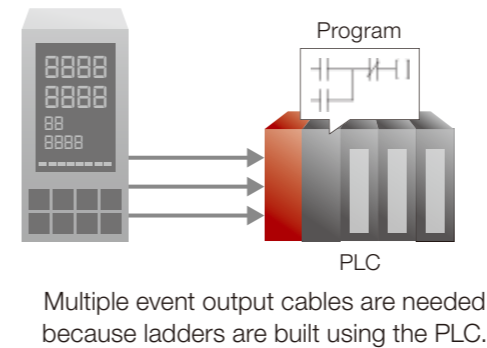
The logical operation function, using input signals, control statuses, and output signals as conditions, allows you to specify complicated conditions using only the controller. You can also reduce the number of PLC inputs and amount of programming work by assigning operation results to event outputs. In addition, a function has been added to detect the rising and falling edges of input signals, making it possible to create self-holding circuits.

The rising edge condition has been added, further enhancing usability.

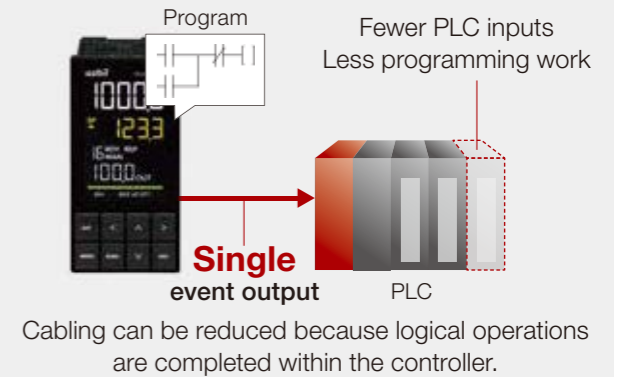


Operation results can be assigned.

When not using logical operations



When using logical operations



C3A/C3B C1A C2A/C2B

More efficient communication through address replacement

You can improve communication efficiency by assigning data communicated with the host to consecutive addresses. This function can assign data from discrete addresses to consecutive addresses. Discrete addresses may need multiple communication messages, but consecutive addresses need fewer communication messages, thus reducing the communication processing time. This also reduces the management of set addresses and debugging load.

Ordinary addresses

Communication item	Address
Internal event 1	1088
AUTO/MANUAL	9001
RUN/READY	9002
PV	9101
SP	9102
PID1 proportional band	12288
PID1 integral time	12289
PID1 derivative time	12290

Discrete addresses require multiple communication sessions

Addresses after replacement

Communication item	Address
AUTO/MANUAL	15360
RUN/READY	15361
PV	15362
SP	15363
Internal event 1	15364
PID1 proportional band	15365
PID1 integral time	15366
PID1 derivative time	15367

Only a single communication session needed as the addresses are consecutive

C3A/C3B C1A C2A/C2B

Easy configuration using the Smart Loader Package

By connecting a PC to the controller using a USB loader cable (separately sold, model SLP-ULCJA0), you can read and write parameters from the PC using the loader. This is useful in a variety of situations: setup, trial run adjustment, operation check, etc.

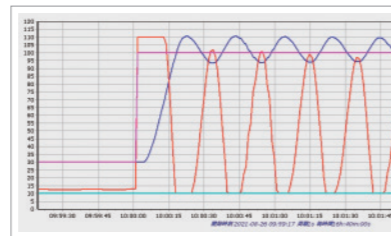


PID simulator

The PID simulator assists in reducing overshoot and hunting. It helps you to reduce the time needed for trial run adjustment and to improve takt time and the quality of equipment.

[Points to Note]

- Simulation results may not match actual control results depending on equipment characteristics.
- In some cases, depending on your current control system, improvement may be unlikely.
- The PID simulator does not support heating/cooling control, cascade control, PID set switching, etc.
- When collecting equipment data before running a simulation, be sure to use the product to be installed.



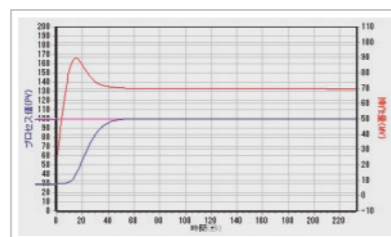
Data collection

Equipment data is collected.



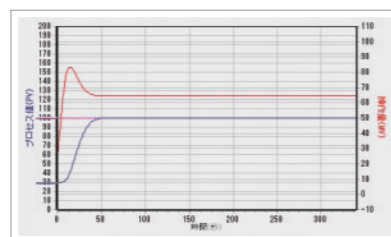
Modeling

Equipment characteristics are automatically analyzed.



Parameter adjustment

Parameters are adjusted by the simulation.



Actual unit check

Actual controllability is checked with the equipment.

Servicing and maintenance

C3A/C3B C1A C2A/C2B

Pullout structure for easy replacement

Quick recovery in the event of a sudden instrument failure.

The pullout structure allows replacement of the inside of the instrument from the front without using special tools.



* If the internal components of the product are pulled out, different product warranty conditions will be applied. For the detailed conditions, please refer to the user's manual.

C3A/C3B C1A C2A/C2B

Asset information useful for CBM*1

Models C3A/C3B and C1A can record its operating time and the number of relay operations internally as asset information.*2 With this function it is possible, for example, to have event output when the number of control output relay operations exceeds a certain number.

*1. Condition-based maintenance

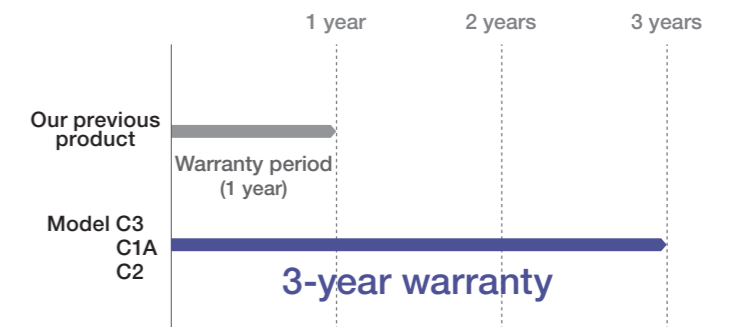
*2. Only if "optional model No. (with extended data memory)" is selected



C3A/C3B C1A C2A/C2B

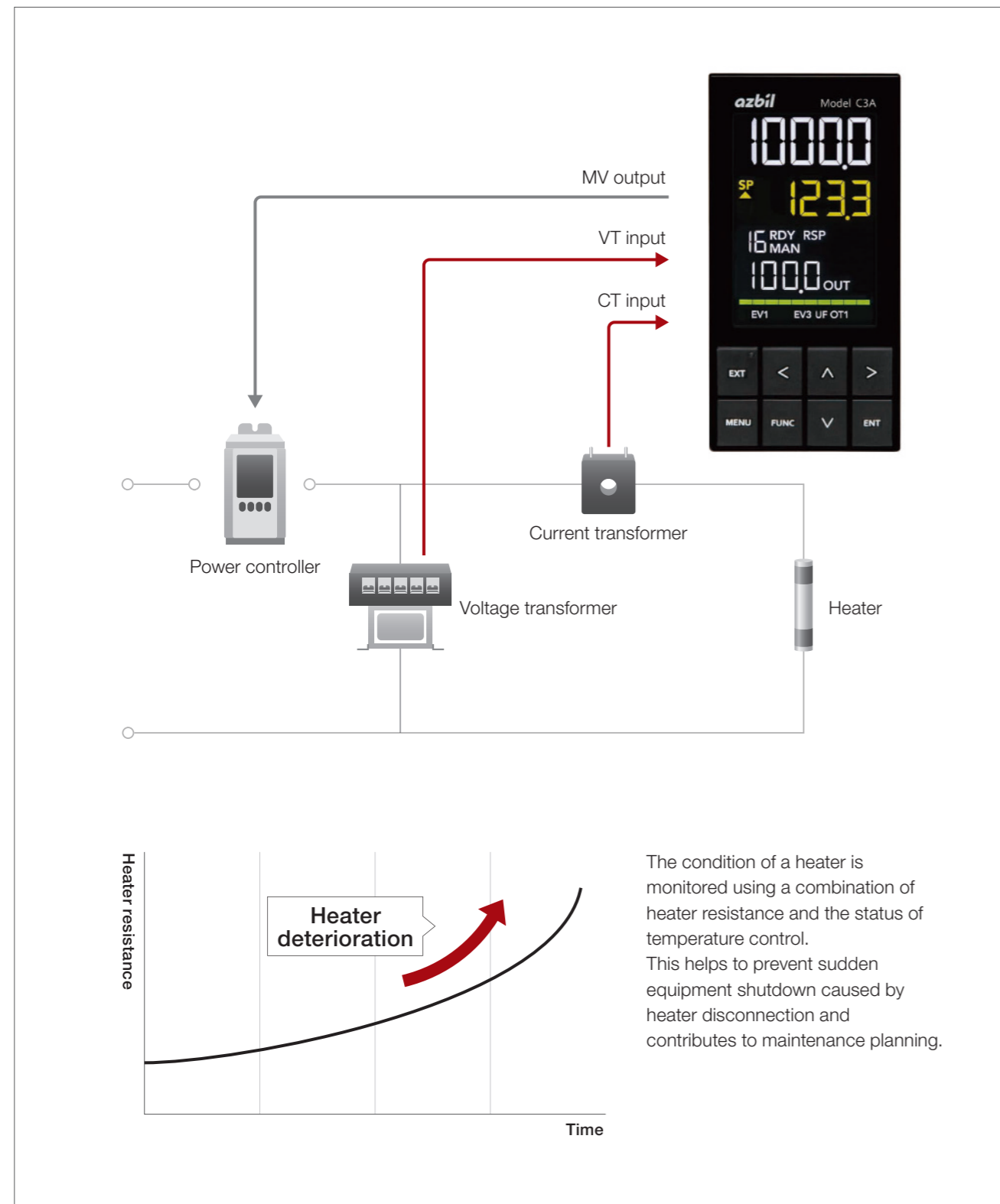
Reassuring three-year warranty

Our long track record and years of highly reliable design allow for a long-term warranty. The standard warranty period is three years.



Heater maintenance

The condition of a heater can be monitored effectively based on its resistance. The voltage and current values of the heater can be measured as effective values (TrueRMS) from the VT (voltage transformer) and CT (current transformer) inputs. By calculating the heater's resistance from the RMS values and monitoring (displaying and communicating) them, the condition of the heater can always be understood.



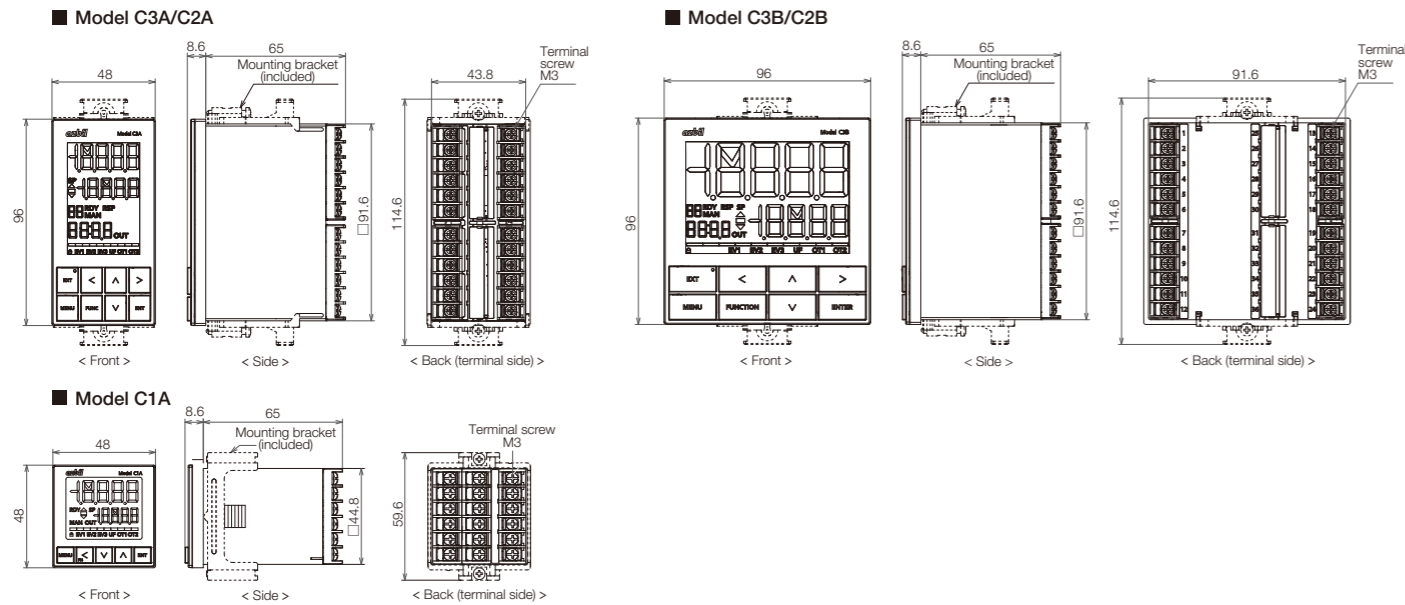
Specifications

		Model C3A/C3B	Model C1A	Model C2A/C2B	
PV input	Input type	Thermocouple, RTD, DC voltage/current			
	Input sampling cycle	25, 50, 100, 300, 500 ms		50, 100, 300, 500 ms	
	Indication accuracy	±0.1 % rdg. ±1 digit (thermocouple, RTD) ±0.1 % FS ±1 digit (DC voltage, DC current)		±0.2 % FS ±1 digit	
Control output	Relay output	250 V AC/30 V DC, 3A (resistive load)			
	Voltage pulse output (for SSR drive)	12 V DC ±20 %, allowable current 24 mA max.			
	Current output	0 to 20 or 4 to 20 mA DC, allowable load resistance 600 Ω max.			
	Motor drive relay output	2 circuits 250 V AC, 6 A (load resistance) 250 V AC, 2 A (cosΦ = 0.4) 24 V DC, 2.5 A (L/R=0.7 ms)			
Event output	Number of outputs	3 max.			
	Output type	Relay output 1a (SPST)			
Digital input	Number of inputs	4 max.	2 max.	4 max.	
	Input type	Non-voltage (dry) contacts or open collector			
RSP input	Number of inputs	1 max.			
	Input type	DC current, DC voltage			
Auxiliary output	Number of outputs	1 max.		1 max.	
	Output type	DC current, DC voltage		DC current	
CT (current transformer) input	General-purpose CT	2 max. Measurement current 1.0 to 100.0 A, indication resolution 0.1 A (800 turns, 1 power wire pass)			
	Micro-CT	2 max. Measurement current 0.10 to 10.00 A, indication accuracy 0.01 A (800 turns, 1 power wire pass)			
Digital (voltage transformer) input	Number of inputs	1 max.			
	Measured voltage range	24 to 240 V AC, 50/60 Hz (model 81406725-003)			
MFB (motor feedback) input	Input type	Potentiometer resistance			
	Resistance value range	100 to 2500 Ω			
RS-485 communication	Protocols	Host communication: compliant with CPL, Modbus/RTU, and Modbus/ASCII or PLC link communication			
	Connectable units	31 max.			
	Transmission line	3-wire system			
	Terminating resistor	External resistor (120 Ω, 1/2 W or more) recommended			
	Communication speed	4800, 9600, 19200, 38400, 57600 bps			
General specifications	Ambient temperature	-10 to +55 °C (-10 to +45 °C for tight mounting)			
	Rated supply voltage	AC model	100 to 240 V AC, 50/60 Hz		
		DC model	24 V DC, 24 V AC, 50/60 Hz		
	Power consumption	AC model	12 VA max.	10 VA max.	12 VA max.
		DC model 24 V DC	6 W max.	5 W max.	6 W max.
		DC model 24 V AC	9 VA max.	7 VA max.	9 VA max.
	Standards compliance	EN61010-1, EN61326-1 (for use in industrial locations), EN IEC63000			
Protection class (device front panel)	IP65		IP66	IP65	
Weight (including mounting bracket)	Model C3A: Approx. 220 g	Approx. 130 g	Model C2A: Approx. 220 g		
	Model C3B: Approx. 280 g		Model C2B: Approx. 280 g		

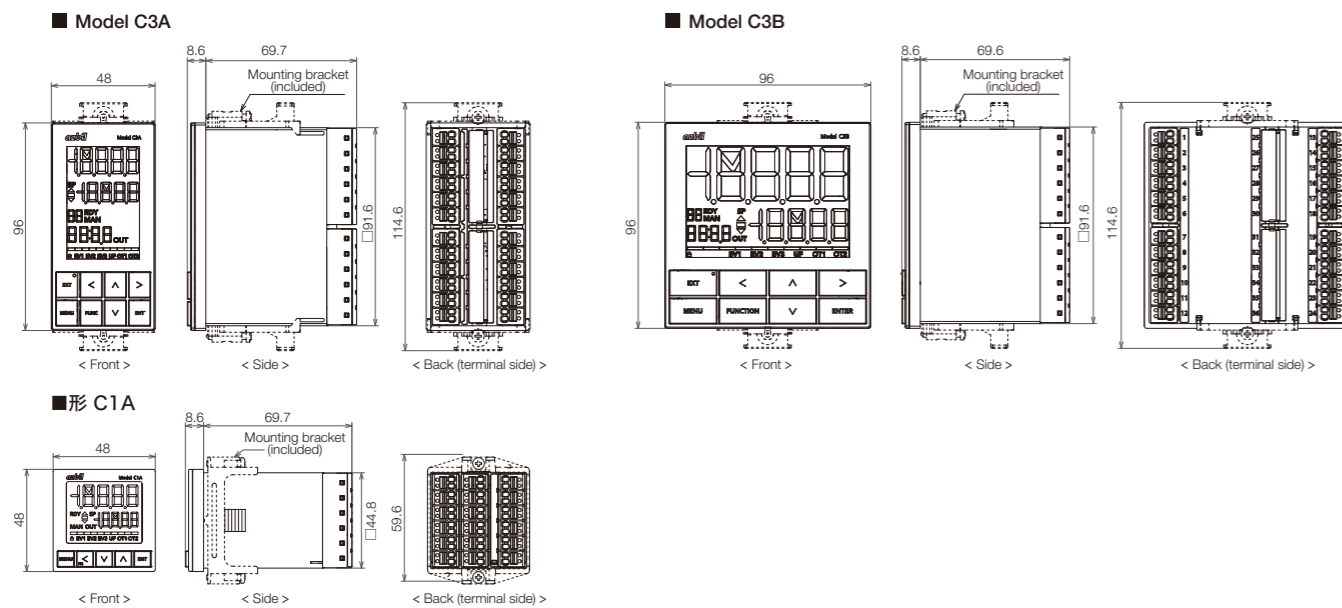
External Dimensions

(Unit: mm)

Screw terminal block

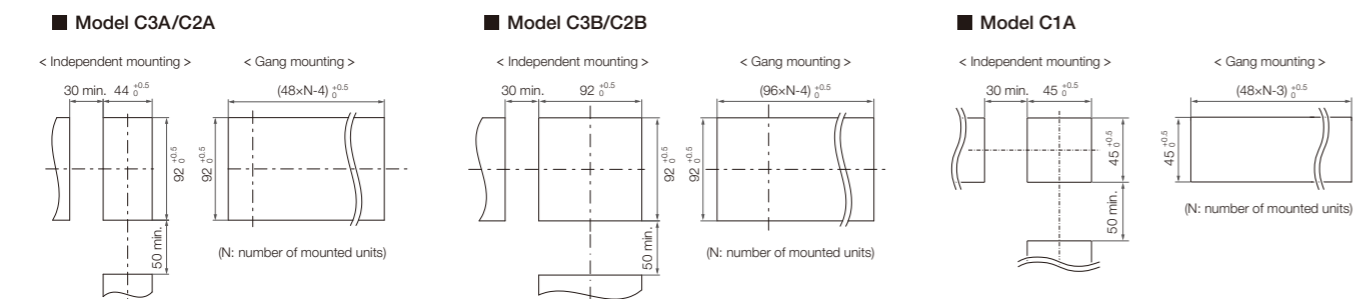


Screwless terminal block *Available soon



Panel cutout dimensions

(Unit: mm)



Optional Products (sold separately)

Models C3/C2

Name	Model No.	Appearance	Model No.	Appearance	Note
Models C3/C2 <common>					
Mounting bracket*	84525941-001				Qty. 2
Models C3A/C2A					
Models C3B/C2B					
Gasket*	84525942-001		84525943-001		Qty. 20
Hard cover	84525944-001	Available soon	84525945-001	Available soon	
Soft cover	84525946-001	Available soon	84525947-001	Available soon	
Terminal cover	84525948-001	Available soon	84525949-001	Available soon	

*The controller comes with two mounting brackets and one gasket.

Model C1A

Name	Model No.	Appearance	Note
Mounting bracket*	84515488-001		
Gasket*	84515487-001		Qty. 20
Hard cover	84515988-001		
Soft cover	84515985-001		
Terminal cover	84515888-001		
DIN rail mounting bracket	84515986-001		

*The controller comes with one mounting bracket and one gasket.

Common parts

Name	Model No.	Appearance	Note
Smart Loader Package*	SLP-C1FJA1		Without loader cable
	SLP-C1FJA2		Included with model SLP-ULCJA0
	SLP-C1FJA3		Included with models SLP-ULCJA0 and 81441177-001
USB loader cable (A-microB)	SLP-ULCJA0		
Right angle extension cable	SLP-ULLJA0		
Current transformer	QN206A		800 turns, hole diameter 5.8 mm
Current transformer	QN212A		800 turns, hole diameter 12 mm
Voltage transformer	81406725-003		Primary side 200 V, secondary side 10 V

Note: The software can be downloaded for free from our website.
<https://aa-industrial.azbil.com/jp/en>

Model Selection

Model C3A/C3B

Basic model No.	Connection	Control output	Power	Options	Add'l proc.	Specifications
C:3:A						48 × 96 mm front panel
C:3:B						96 × 96 mm front panel
	T					Screw terminal block
	*4 S					Screwless terminal block
						Control output 1 Control output 2
		R:0				Relay output (C.O. contacts) None
		R:1				Relay for motor drive output None
	*2	V:0				Voltage pulse output *1 None
		V:C				Voltage pulse output *1 Current output
		V:V				Voltage pulse output *1 Voltage pulse output *1
		C:0				Current output None
		C:C				Current output Current output
			A			AC power supply (100–240 V AC)
			*4 D			DC power supply (24 V DC / 24 V AC)
				1		3 event relay outputs (common contacts)
				2		3 event relay outputs (common contacts), AUX output (current)
				3		3 event relay outputs (common contacts), AUX output (voltage)
				4		2 event relay outputs (independent contact)
				5		2 event relay outputs (independent contact), AUX output (current)
				6		2 event relay outputs (independent contact), AUX output (voltage)
				0		None
				1		4 digital inputs
				2		4 digital inputs, RS-485 comm.
				3		2 digital inputs, RSP input
				4		2 digital inputs, RSP input, RS-485 comm.
				0		None
			*3	1		2 CT inputs
			*3	2		CT/VT inputs
			*3	3		2 micro-CT inputs
			*3	5		2 CT inputs, Expanded data memory
			*3	6		CT/VT inputs, Expanded data memory
			*3	7		2 micro-CT inputs, Expanded data memory
				0		None
			D			With inspection report
			Y			With traceability certificate
				0		None
			*4	A		UL compatible model

*1. For SSR drive

*2. Not available in DC models

*3. Not available when the control output is R1

*4. Available soon

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<https://aa-industrial.azbil.com/jp/en/order>

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MELSEC is a trademark of Mitsubishi Electric Corporation.

Modbus is a trademark and the property of Schneider Electric SE, its subsidiaries and affiliated companies.

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Azbil Corporation

Advanced Automation Company

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Kanagawa 251-8522 Japan

URL: <https://aa-industrial.azbil.com/jp/en>

1st Edition: Jul. 2024-SO
2nd Edition: Sep. 2024-SO

Model C1A

Basic model No.	Connection	Control output	Power	Options	Add'l proc.	Specifications
C:1:A						48 × 48 mm front panel
	T					Screw terminal block
	*4 S					Screwless terminal block
						Control output 1 Control output 2
		R:0				Relay output (C.O. contacts) None
		V:0				Voltage pulse output *1 None
		V:C				Voltage pulse output *1 Current output
		V:V				Voltage pulse output *1 Voltage pulse output *1
		C:0				Current output None
		C:C				Current output Current output
			A			AC power supply (100–240 V AC)
			D			DC power supply (24 V DC / 24 V AC)
				0		No event relay output
				1		3 event relay outputs
				4		2 event relay outputs (independent contacts)
				0	0	None
				1	0	2 CT inputs, 2 digital inputs
				2	1	2 CT inputs, RS-485 comm.
				2	3	2 CT inputs, RS-485 comm., Extended data memory
				4	0	CT/VT input, 2 digital inputs
				5	1	CT/VT input, RS-485 comm.
				5	3	CT/VT input, RS-485 comm., Extended data memory
				6	0	2 Micro-CT inputs, 2 digital inputs
				7	1	2 Micro-CT inputs, RS-485 comm.
				7	3	2 Micro-CT inputs, RS-485 comm., Extended data memory
				0		None
			D			With inspection report
			Y			With traceability certificate
				0		None
			*4	A		UL compatible model

Model C2A/C2B

Basic model No.	Connection	Control output	Power	Options	Add'l proc.	Specifications
C:2:A						48 × 96 mm front panel
C:2:B						96 × 96 mm front panel
	T					Screw terminal block
						Control output 1 Control output 2
		R:0				Relay output (C.O. contacts) None
		V:0				Voltage pulse output *1 None
		V:C				Voltage pulse output *1 Current output
		V:V				Voltage pulse output *1 Voltage pulse output *1
		C:0				Current output None
		C:C				Current output Current output
			A			AC power supply (100–240 V AC)
			*4 D			DC power supply (24 V DC / 24 V AC)
				1		3 event relay outputs (common contacts)
				2		3 event relay outputs (common contacts), AUX output (current)
				4		2 event relay outputs (independent contact)
				5		2 event relay outputs (independent contact), AUX output (current)
				0		None
				1		4 digital inputs
				2		4 digital inputs, RS-485 comm.
				0		None
				1		2 CT inputs
				0		None
			D			With inspection report
			Y			With traceability certificate
				0		None
			*4	A		UL compatible model

[Notice] Specifications are subject to change without notice.

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