

Model C1A

Single loop controller

ELECTRONIC
EQUIPMENT

ACOUSTIC

WEIGHING

ANTI-TILTING

VALVES

TEMPERATURE

DETECT
A FIRE®

FLOW/
RATE

DENSITY

INTERFACE

PRESSURE

LEVEL



**High performance and usability overturn
preconceptions about 48×48 mm controllers**

Enhanced functions

Our temperature controllers, which have always solved problems at manufacturing sites, are now even better:

- 25 ms sampling cycle
- ±0.1 % input accuracy
- Universal input
- IP66-compliant



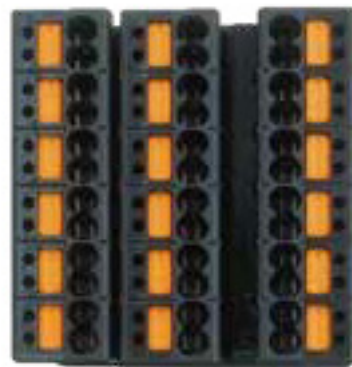
Actual size 48×48 mm (H×W)

Design and Installation

Easy installation, no-tools wiring

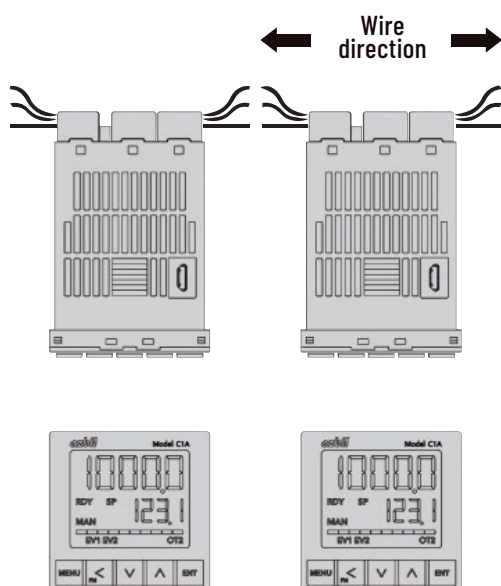
Screwless terminal block models can also be ordered. With spring terminals, you can complete the wiring simply by inserting ferrule connectors.

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.

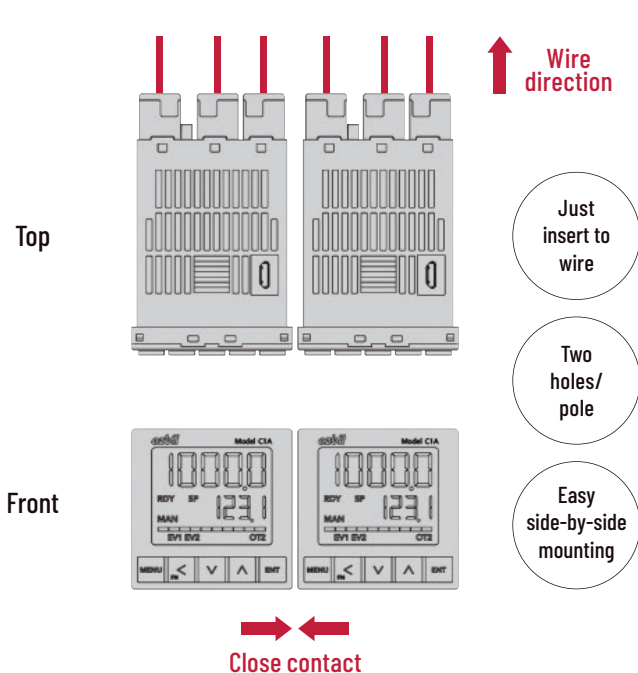


Back of screwless terminal block

Screw terminals



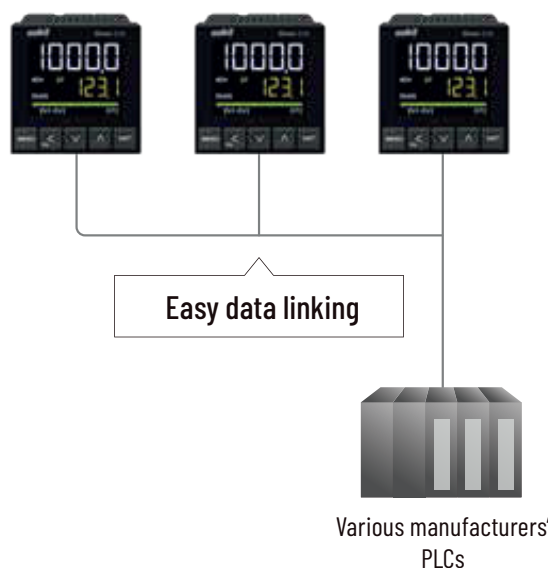
Screwless terminals



Easy connection with PLC link function

Data is transmitted by RS-485 serial communication without the need for a communication program, saving you time and engineering work.

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 TM /RTU	KV-NANO from Keyence S7-1200 from Siemens AG

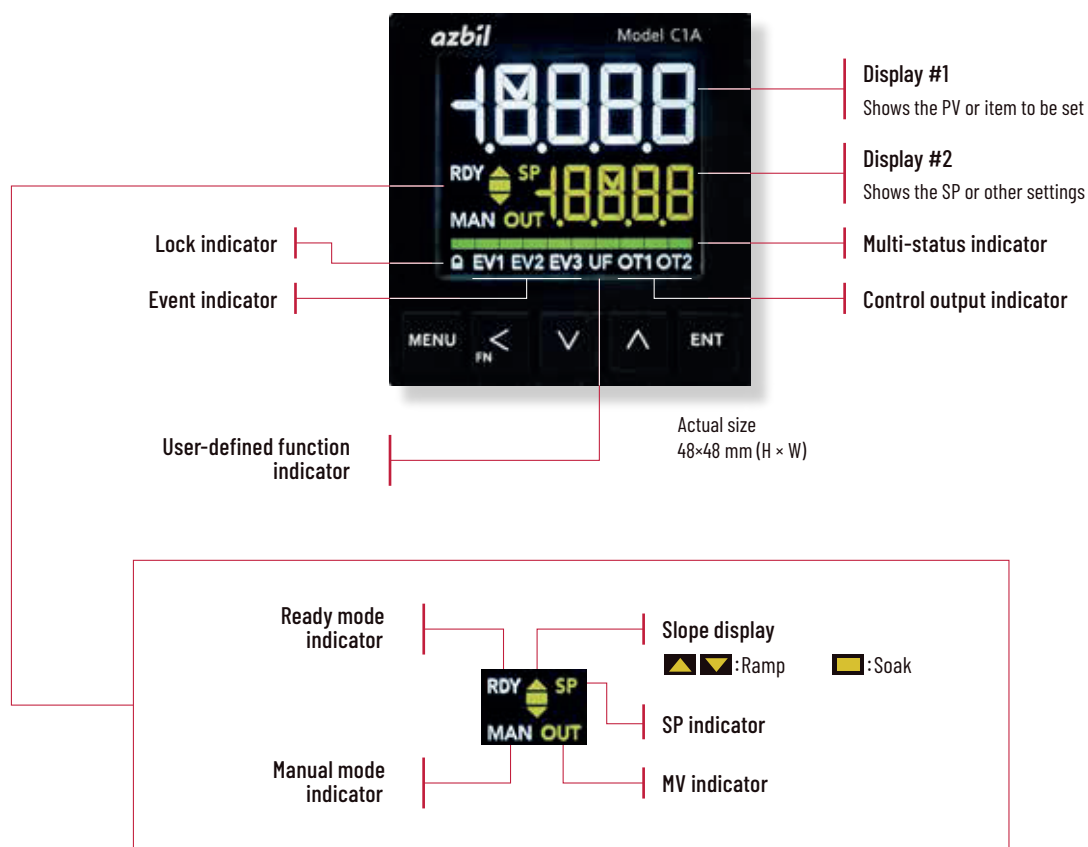


Operation and management

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.



Pattern operation for process-optimized operation

Equipped with a pattern operation function of up to 8 patterns and 16 segments.¹ 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.

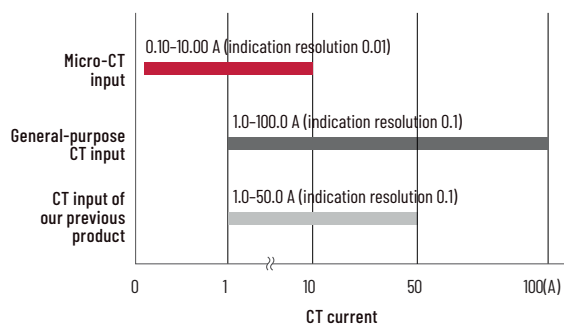


¹Only if "optional model No. (with extended data memory)" is selected

Micro-CT measurement detects heater disconnection

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

**By measuring effective (RMS) values, the heater current can be detected even from a waveform deformed by a thyristor.*



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.

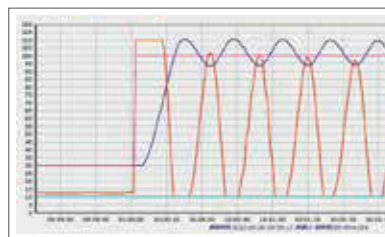


PID simulator

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.

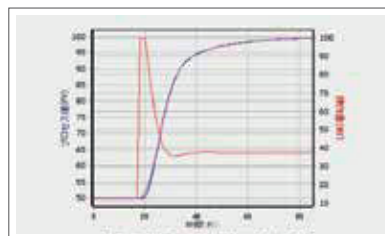
Points to Note:

- 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.



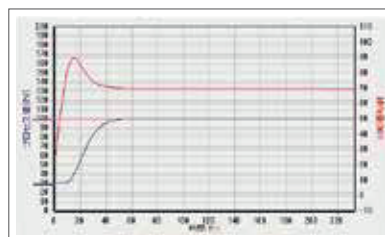
Data collection

Equipment data is collected.



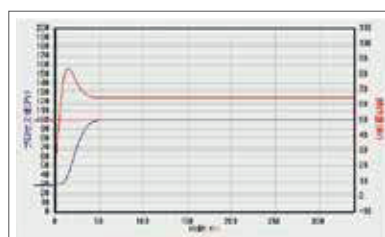
Modeling

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

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.



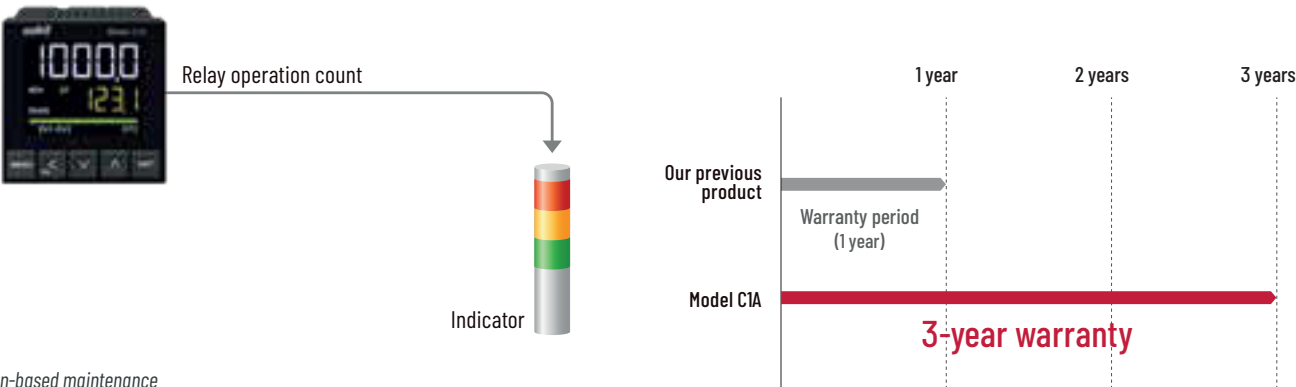
** If the internal components of the product are pulled out, different product warranty conditions will be applied. For the detailed conditions, please refer to the user's manual.*

Asset information useful for CBM^{*1}

Model 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.

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.



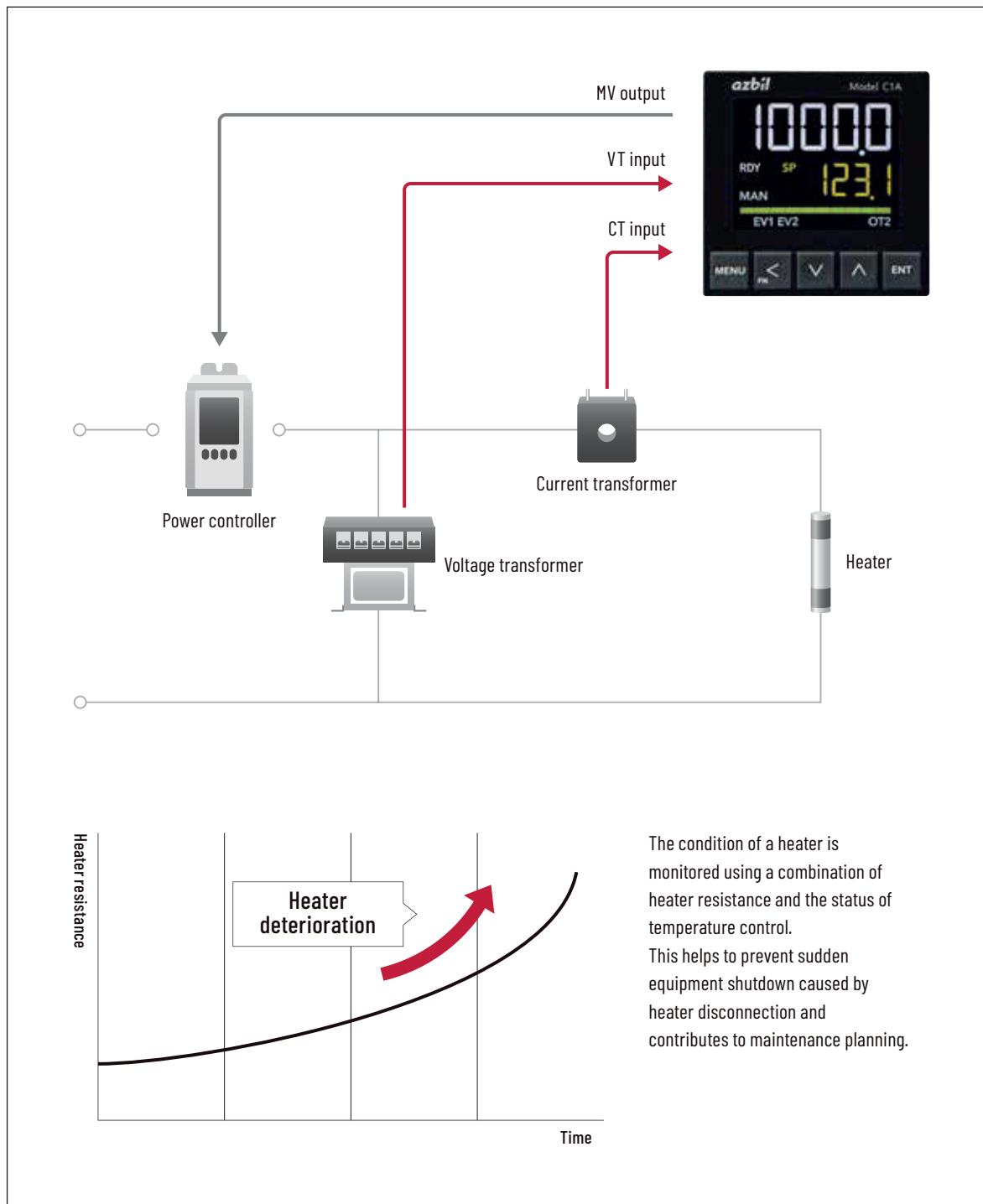
^{*1} Condition-based maintenance
^{*2} Only if "optional model No. (with extended data memory)" is selected

Heater maintenance

Heater deterioration monitoring

The condition of a heater can be monitored effectively based on its resistance.

Model C1A can measure the effective voltage and current values (true RMS) of a heater from voltage transformer (VT) and current transformer (CT) 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. This is useful in a variety of situations: setup, trial run adjustment, operation check, etc.



Specifications

PV Input	Type	Thermocouple, RTD, DC voltage/current
	Sampling cycle	25, 50, 100, 300, 500 ms
	Indication accuracy	±0.1 % rdg. ±1 digit (thermocouple, RTD) ±0.1 % FS ±1 digit (DC voltage, DC current)
Control Output	Control modes	ON/OFF, time proportional PID, current proportional PID
	Output type (selectable by model No.)	- Relay output: 1c (SPDT) 250 V AC / 30 V DC, 3A - Voltage pulse output: 12 V DC ±20 %, allowable current 24 mA max. - Current output: 0–20, 4–20 mA DC, allowable load resistance 600 Ω max.
Event Output	Number of outputs	3 max.
	Output type	Relay output: 1a (SPST)
Digital Input	No. of inputs	2 max.
	Input type	Non-voltage (dry) contacts or open collector
CT Input	General-purpose CT	2 max. Measurement current 1.0–100.0 A, indication resolution 0.1 A
	Micro CT	1 max. Measurement current 0.10–10.00 A, indication resolution 0.01 A
VT Input	Number of inputs	1 max.
	Measured voltage range	24–240 V AC, 50/60 Hz (model 81406725-003)
RS-485 Comm.	Protocols	CPL, Modbus compliant
	Connectable units	31 max.
	Comm. speed	57,600 bps max.
General	Ambient temperature	–10 to +55 °C (–10 to +45 °C for tight mounting)
	Rated supply voltage	100–240 V AC, 50/60 Hz (AC models) 24 V DC, 24 V AC, 50/60 Hz (DC models)
	Power consumption	10 VA max. (AC models) 7 VA max. (24 V AC), 5 W max. (24 V DC) (DC models)
	Standards compliance	EN 61010-1, EN 61326-1 (for use in industrial locations), EN IEC 63000
	Protective structure	IP66 (device front panel)
	Mass	130 g (including mounting bracket)

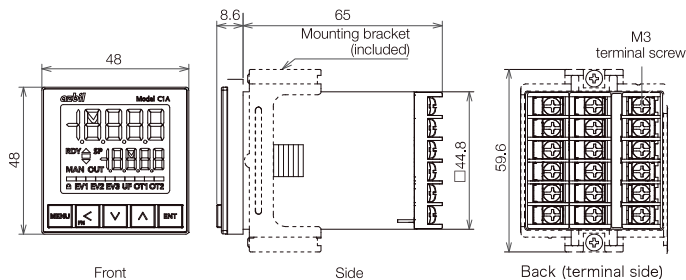
Model Selection

Basic No.	Connection	Control output	Power	Options	Add'l proc.	Specifications	
C1A	T S					Basic model No.	
						Screw terminal block	
						Screwless terminal block * Available soon	
						Control output 1	Control output 2
		R	0			Relay output (C.O. contacts)	None
		V	0			Voltage pulse output (for SSR drive)	None
		V	0			Voltage pulse output (for SSR drive)	Current output
		V	V			Voltage pulse output (for SSR drive)	Voltage pulse output (for SSR drive)
		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	
					A	UL compatible model * Available soon	

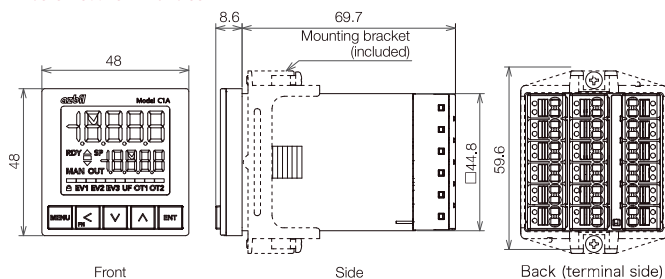
External Dimensions

(Unit: mm)

■ Screw terminal block



■ Screwless terminal block



Optional Products (sold separately)

Name	Model No.	Note (model No., etc.)
Mounting bracket	84515488-001	For maintenance
Gasket	84515487-001	For maintenance (qty. 20)
Hard cover	84515988-001	
Soft cover	84515985-001	
Terminal cover	84515888-001	Screw terminal block models
DIN rail mounting bracket	84515986-001	Screw terminal block models
Current transformer	QN206A	800 turns, hole diameter 5.8 mm
	QN212A	800 turns, hole diameter 12 mm
Voltage transformer	81406725-003	Primary side 200 V, secondary side 10 V
Smart Loader	SLP-C1FJA1	Without USB loader cable
Package	SLP-C1FJA2	USB loader cable for model C1A (model SLP-ULCJA0) included
	SLP-C1FJA3	USB loader cable for model C1A (model SLP-ULCJA0) and USB loader cable for model C1M (model 81441177-001) included
USB loader cable (A-microB)	SLP-ULCJA0	USB loader cable for model C1A
Right angle extension cable	SLP-ULLJA0	For model SLP-ULCJA0

Note: The software can be downloaded for free from our website.

<https://www.azbil.com/products/factory/factory-product/controller-recorder-communication-gateway/controller/index.html>