

# Burner Controller | BC-R30

BC-R30 Series burner controllers are combustion safety controllers specifically designed for batch operation (systems which start and stop at least once within 24 hours).

They ensure safety by automatically controlling the ignition, combustion monitoring, and fuel shutoff of oil and gas burners with proportional control. They are also equipped with a 7-segment display that can be used in maintenance, a trial operation mode that is convenient for trial-run operation and adjustment, and other features.

Additionally, the BC-R35 is equipped with host communications (RS-485) and Smart Loader Package functions, allowing troubleshooting and more detailed observation of status.



## Specifications

Application		Batch-operated combustion systems burning gas, oil, or gas/oil mixture								
Compatible flame detector		AUD100/110/120 series UV sensor, flame rod AFD100/110 series visible light flame detector, contact input								
Sequence	Sequence timing	Prepurge	Ignition standby	Pilot ignition (main ignition)*1	Pilot only (Hi solenoid valve ignition standby)*1	Main ignition (Hi solenoid valve ignition)*1	Main burner stabilization	Low fire shutdown	Postpurge	
		35 s, 3 min (select by model number)*2	7.5±1 s	4.5±0.5 s	8.5±1 s	4.5±0.5 s	8.5±1 s	45 s max.	20±2 s	
	Flame response	AUD100/110/120 series UV sensor		Flame rod		AFD series visible light flame detector		Contact input		
		2 s max (nominally 1.5 s) (when flame voltage is 3 V)		2 s max (nominally 1.5 s) (when flame voltage is 2 V)		2 s max (nominally 1.5 s) (20 lx -> 0 lx)		1 s max (nominally 0.8 s) (3 s max. when combined with AUR300 series controller (with flame response 2 s max.) for continuous operation)		
	Reset timing	1 s or longer (main unit reset switch or contact reset input)*4								
	Warning detection timing	False flame	Airflow switch error 1	Airflow switch error 2	Interlock error	Low fire interlock error 1	Low fire interlock error 2	High fire interlock error	POC (shutoff valve closure check) error	
		5 s	1 s	180 s	1 s	1 s max.	180 s	180 s	3 s	
	Airflow switch monitoring	Yes (checks for switch error #1, error #2)								
	Ignition failure	Lockout								
	Flameout	Lockout								
Low fire shutdown*3	After confirming low combustion position when stopped, moves to postpurge (selected according to model).									
Electrical specifications	Rated power supply voltage	AUD100/110/120 series UV sensor			Flame rod		AFD series visible light flame detector		Contact input	
		100 Vac or 200 Vac, 50/60 Hz					100 to 230 Vac, 50/60 Hz			
	Allowable power supply voltage	85 to 110 % of rated power supply								
	Voltage resistance	1,500 Vac for 1 min, or 1,800 Vac for 1s Between each terminal and ground, except for combustion sensor connection terminals (terminals 14, 15)								
	Insulation resistance	At least 50 MΩ, 500 Vdc megger								
		Between each terminal and ground, except for combustion sensor connection terminals (terminals 13, 14)								
	Contact rating	Blower motor (electromagnetic breaker)	Ignition transformer	Pilot valve (main valve Lo solenoid valve)*1	Main valve (main valve Hi solenoid valve)*1	Warning		Control motor open output, close output, proportional output		
		100 VA	300 VA	200 VA	200 VA	75 VA		200 VA		
	Monitor outputs	4, maximum 30 mA each								
	Combustion detection level	AUD100/110/120 series UV sensor		Flame rod		AFD100/110 series visible light flame detector		Contact input		
When ignition is detected: 1.5 to 4.5 Vdc When extinction is detected: 0.2 to 0.6 Vdc		When ignition is detected: 1.5 to 4.5 Vdc When extinction is detected: 0.0 to 0.2 Vdc		When ignition is detected: 1.3 Vdc or less When extinction is detected: 0.5 Vdc or more		When ignition is detected: Short between F and G When flame is not detected: Open between F and G				
Flame voltage output	Recommended flame voltage: must be stable at 2 Vdc or above Flame voltage output range: 0.2 to 4.5 Vdc		Recommended flame voltage: must be stable at 2 Vdc or above Flame voltage output range: 0.0 to 4.5 Vdc		Flame voltage output range: 0.2 to 4.8 Vdc		When ignition is detected: 4.0 Vdc or more When flame is not detected: 0.5 Vdc or less			
Input	Start input, lockout interlock input, contact reset input, airflow switch input, POC (shutoff valve closure check) input, high fire interlock, low fire interlock * Each input is a non-voltage contact input, with allowable contact resistance up to 500 Ω									
Lifespan	10 years when used for eight hours per day, or 100,000 start/stop cycles (at 25 °C, room temperature, rated voltage)									
Host communication specifications	Communications standard	RS-485								
	Transmission route	3-wire system								
	Transmission speed	4,800, 9,600, 19,200 bps								
	Transmission distance	Max. 500 m								
	Communication method	Semi-duplex								
	Synchronization method	Asynchronous								
	Data format	8 data bits, 1 stop bit, even parity, odd parity 8 data bits, 2 stop bits, even parity, odd parity								
	Device address	1 to 32								
General specifications	Protective structure	IP40 (with a sideboard ( 81447515-001) attached to the sub-base (BC-R05)) IP10 (sub-base (BC-R05) only)								
	Excess voltage category	II								
	Pollution degree	PD2								
	Case color	Black								
	Case material	Denatured PPE resin (UL94-V0 PTI materials group IIIa)								
	Structure	Sub-base and main unit								
	Mounted orientation	Vertical or horizontal However, in horizontal mounting the 7-segment display must face directly upward (DIN rail mounting or direct mounting through base screw holes)								
	Standards	JIS C 9730-2-5:2010 (Automatic Electrical Controls For Household And Similar Use - Part 2-5: Particular Requirements For Automatic Electrical Burner Control Systems) Compliant with JIS C 9730-1:2010 (Automatic Electrical Controls For Household And Similar Use - Part 1: General Requirements)								
	Weight	Approximately 600 g (incl. sub-base)								

\*1. Item in ( ) is for the case of direct ignition.

\*2. Visible light flame detector and contact input are 35 s only.

\*3. Visible light flame detector and contact input model do not have the low fire shutdown function.

\*4. During postpurge after a warning, no reset input is accepted until postpurge is complete. Also, reset input is not accepted if no warning has occurred.

1 DIGITAL CONTROLLERS  
2 RECORDERS, INDICATORS  
3 CONVERTERS  
4 FLAME SAFEGUARD SYSTEM  
5 ACTUATORS  
6 SENSORS  
7 GAS FLOW MEASUREMENT AND CONTROL PRODUCTS

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## Model No. configuration

(Note: The dedicated sub-base and sideboard are not provided with the BC-R30 series controller. Order them separately.)

### Direct ignition type

Ex.: BC-R30B1L0500

Basic model No.	Communication functions	Combustion sensor	Power supply	Function code	Timing code	Additional functions	Description
BC-R3							Burner Controller
	0						No communication functions
	5						Host communications (RS-485)/Smart Loader Package function
		B					Flame rod
		C					UV sensor
			1				100 Vac
			2				200 Vac
				L			Direct ignition type (without low fire shutdown)
				N			Direct ignition type (with low fire shutdown)
					050		Prepurge time 35 s
					158		Prepurge time 3 min
						0	None
						D	Inspection record (with data)

### Interrupted pilot type

Ex.: BC-R30C1J0500

Basic model No.	Communication functions	Combustion sensor	Power supply	Function code	Timing code	Additional functions	Description
BC-R3							Burner Controller
	0						No communication functions
	5						Host communications (RS-485)/Smart Loader Package function
		*1 C					UV sensor
			1				100 Vac
			2				200 Vac
				G			Interrupted pilot type (without low fire shutdown)
				J			Interrupted pilot type (with low fire shutdown)
					050		Prepurge time 35 s
					158		Prepurge time 3 min
						0	None
						D	Inspection record (with data)

\*1. Flame rod cannot be selected with the interrupted pilot type.

### Interrupted pilot type (compatible with visible light flame detector)

Ex.: BC-R30A7G0500

Basic model No.	Communication functions	Combustion sensor	Power supply	Function code	Timing code	Additional functions	Description
BC-R3							Burner Controller
	0						No communication functions
		A					Visible light flame detector
			7				100 to 230 Vac
				G			Interrupted pilot type (without low fire shutdown)
					050		Prepurge time 35 s
						0	None

### Interrupted pilot type (contact input model\*2)

Ex.: BC-R30F7G0490

Basic model No.	Communication functions	Combustion sensor	Power supply	Function code	Timing code	Additional functions	Description
BC-R3							Burner Controller
	0						No communication functions
		F					Contact input
			7				100 to 230 Vac
				G			Interrupted pilot type (without low fire shutdown)
					049		Prepurge time 35 s
						0	None

\*2. Select this for compliance with standard on remote control of boilers (Standards circular No. 0331001).

## Optional parts (sold separately)

Name	Model No.	Notes
Dedicated sub-base for BC-R	BC-R05A100	Required for all products in the BC-R30 series
Connector for front wiring	81447514-001	Weidmueller model number: BL3.5/11F, compatible wire: 0.2-1.5 mm <sup>2</sup> (AWG28-14)
Connector for front wiring (For right-side wiring)	81447514-002	Weidmueller model number: BL3.5/11/270F, compatible wire: 0.2-1.5 mm <sup>2</sup> (AWG28-14)
Sideboards	81447515-001	Contains two. Not included in the sub-base.
Smart Loader Package (No cable)	SLP-BCRJ71	Compatible with BC-R35 (with communications functions)
USB loader cable	81441177-001	
Analog flame meter	FSP136A100	
Jack cover	81447519-001	(Included with the controller.)
Front connector cover	81447531-001	Packaged with mounting screws (Included with the controller.)

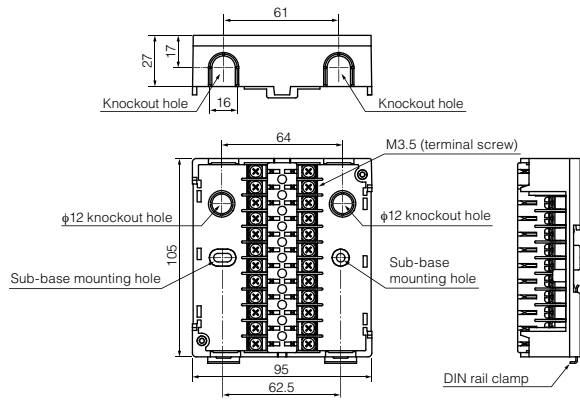
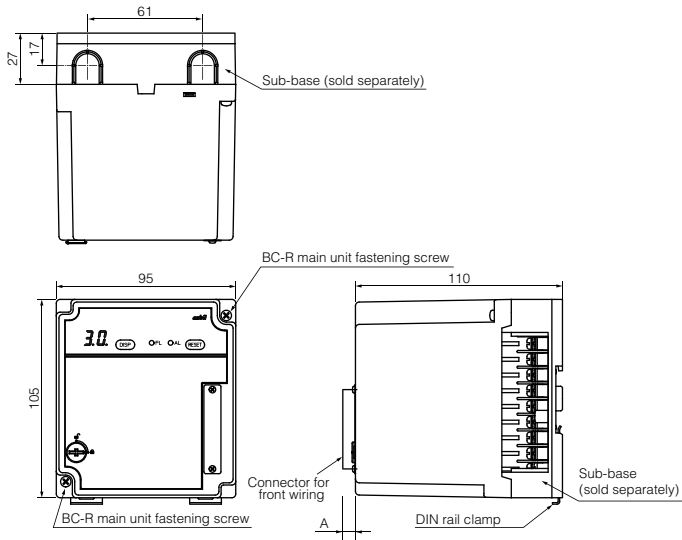
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## External Dimensions

BC-R30 Burner Controller

Sub-base BC-R05A100 (sold separately)

(Unit: mm)



Model No.	A
81447514-001	10.6
81447514-002	14.6

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