

# Advanced Ultraviolet Burner Controller AUR300C

The AUR300C is a burner controller with a dynamic self-checking function and is used in combination with the AUD300C Advanced Ultraviolet Detector.

This burner controller controls the built-in flame relay while checking if any malfunction has occurred in the UV detector or the burner controller by driving the shutter of the UV detector.

If the detector or amplifier circuit fails for any reason, the burner controller is not automatically energized and secures the safety of the system.



## ■ Features

- When any abnormality exists at the start of operation, the start-check relay is not energized, ensuring safety by not generating a signal to the main valve or flame output.
- Operation status can be confirmed by LED displays (power, shutter, start check and flame).
- Flame signal output (0 to 5Vdc) is provided as a standard function. This is useful for burner adjustment and flame status control.

## ■ Specifications

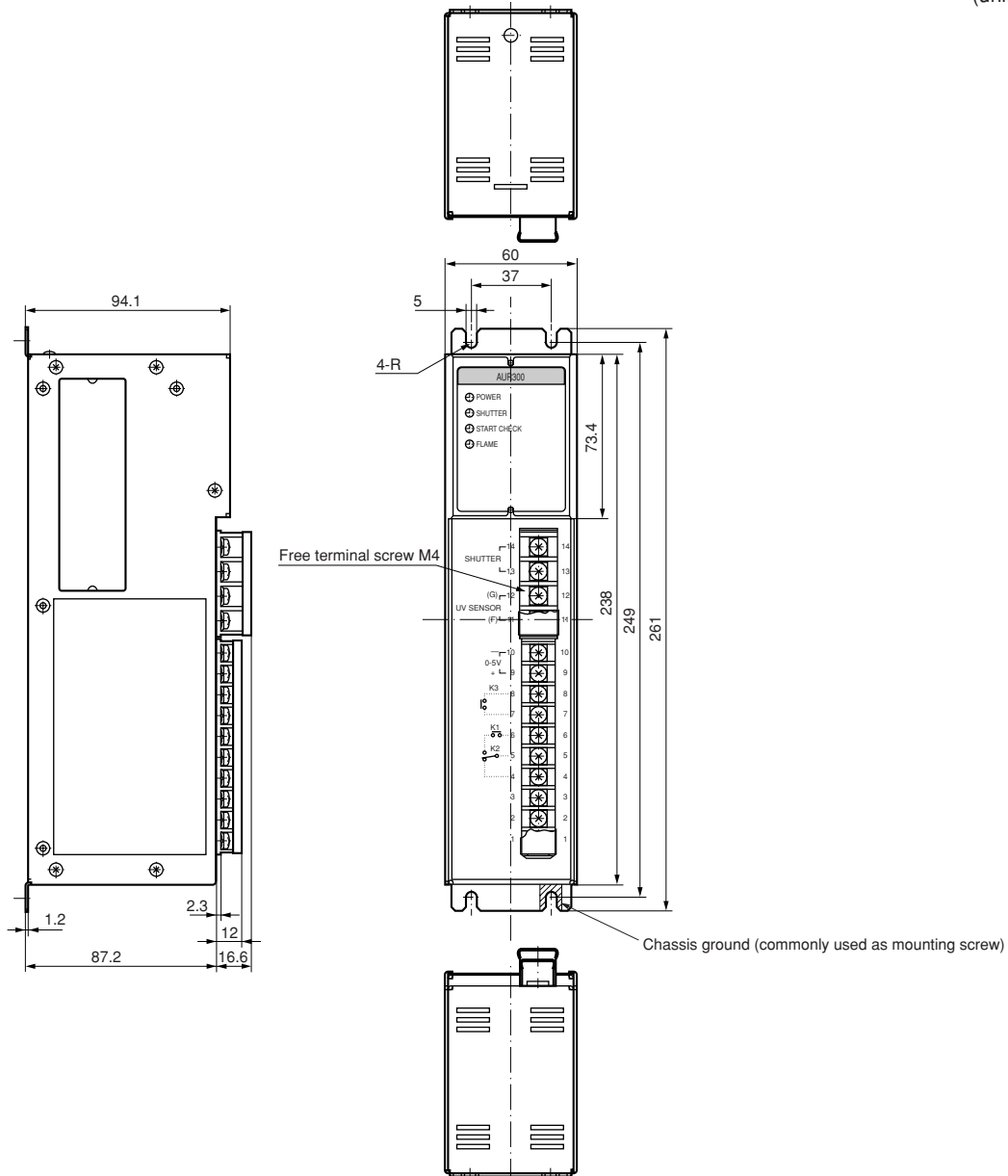
Item	Description
Flame detector	AUD300C
Flame response time	Nominal 3s, (max. 4s) at 3V flame voltage
Flame voltage range	· When ignited: 1.2 to 4.0Vdc at room temperature, humidity and rated voltage · When flame fails: 0.0 to 0.6Vdc at room temperature, humidity and rated voltage
Recommended flame voltage	1.5Vdc min. when ignited
Rated power supply voltage	100Vac or 200Vac at 50/60Hz
Allowable voltage range	85 to 110% of rated power supply voltage
Power consumption	10W max. (with AUD300C)
Dielectric strength	1500Vac 50/60Hz 1 min or 1800Vac 50/60Hz 1s Application points: Between ground and primary terminals 1 to 8 (not 9 to 14)
Insulation resistance	100MΩ min. by a 500Vdc megger Measurement points: Between ground and primary terminals 1 to 8 (not 9 to 14)
Induced lightning surge	10kV, 1.2/50μs (JEC-187 : 75Ω min. surge impedance) The surge absorber listed hereunder must be connected between the power supply terminal (terminal 1) and the ground. · Recommended surge absorber: Part No. 83968019-001
Service life	7 years or 100,000 cycles (operation cycles of each relay)
Ambient temperature	-20 to +60°C
Storage temperature	-20 to +70°C
Ambient humidity	90% RH at 40°C max. (no condensation allowed)
Vibration resistance	4.9m/s <sup>2</sup> max., 10 to 55Hz for 2 hours each in X, Y and Z directions
Mounting direction	Wall mounting (vertical or horizontal mounting)
Color	White
Weight	Approx. 1.2kg

## Model No.

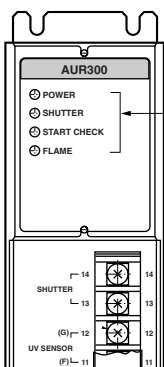
Model No.	Description
AUR300C13100	Advanced ultraviolet burner controller, 100Vac 50/60Hz
AUR300C13200	Advanced ultraviolet burner controller, 200Vac 50/60Hz
AUR300C131D0	Advanced ultraviolet burner controller, 100Vac 50/60Hz with inspection certificate
AUR300C132D0	Advanced ultraviolet burner controller, 200Vac 50/60Hz with inspection certificate

## Dimensions

(unit: mm)



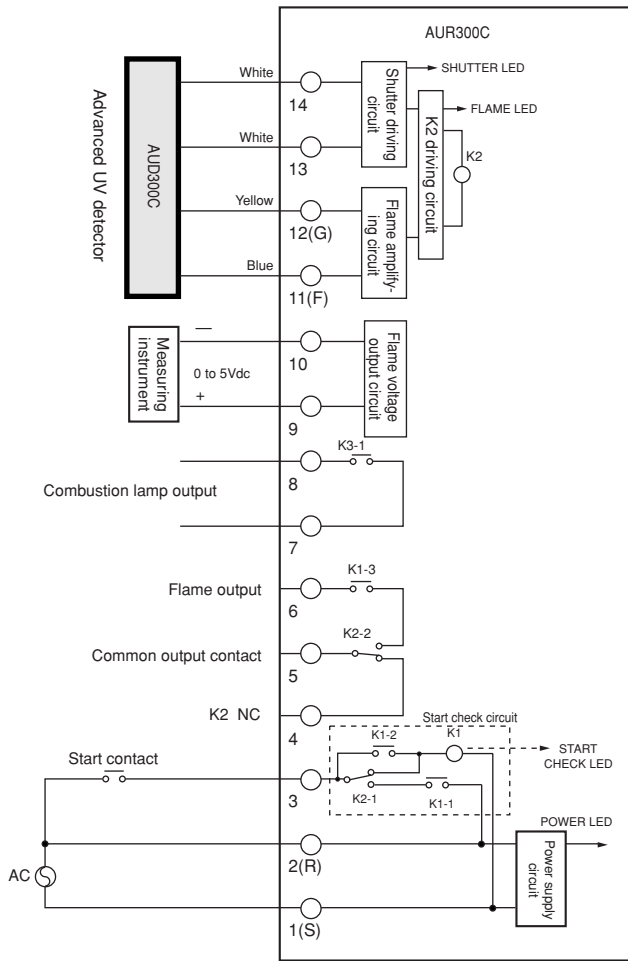
## LED indicators



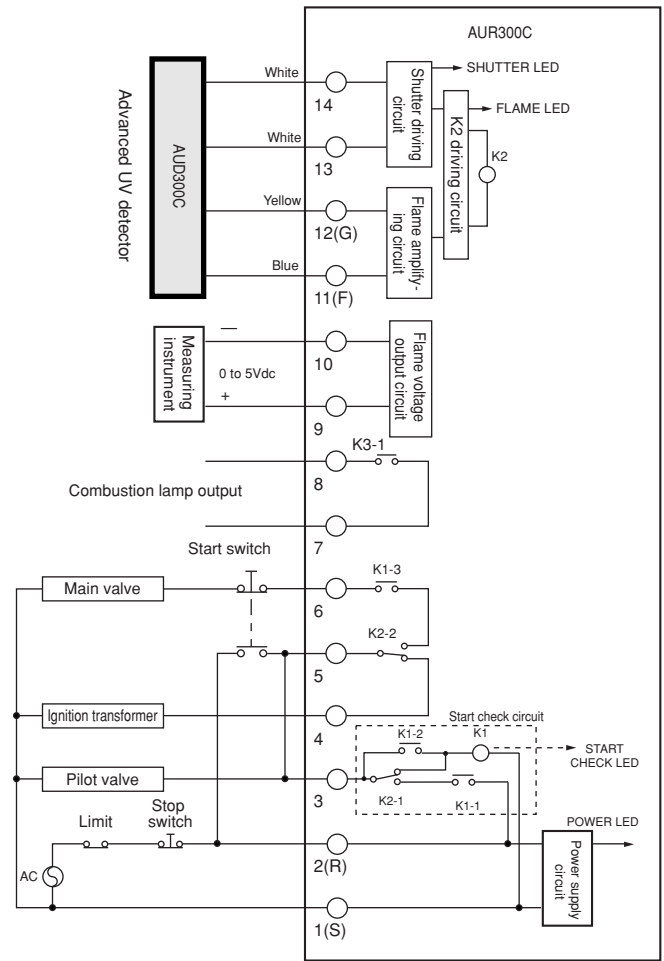
Name	Color	Description
<b>POWER</b>	Green	Lit when power supply is ON
<b>SHUTTER</b>	Green	Lit when shutter is closed
<b>START CHECK</b>	Green	Synchronous with K1 relay (start check)
<b>FLAME</b>	Green	Synchronous with K2 relay (flame detection)

## ■ Wiring

### ● Burner flame monitoring



### ● Manual ignition type (intermittent pilot)



K1: Start check  
K2: Flame detection  
K3: Combustion lamp

## ■ Terminal No.

Terminal No.	Description	Electrical rating
1	Power supply (S) ground side	100/200Vac 50/60Hz
2	Power supply (R) high-voltage side	
3	Start input	-
4	Flame output (K2)	5A 250V (cos $\phi = 1$ )
5	Common output contact	-
6	Flame output (K1, K2)	5A 250V (cos $\phi = 1$ )
7	Combustion lamp output (K3)	3A 250V (cos $\phi = 1$ ) *1
8	Combustion lamp output (K3)	
9	Flame voltage output (+)	0 to 5Vdc *2
10	Flame voltage output (-)	
11	AUD300C F-terminal (blue)	-
12	AUD300C G-terminal (yellow)	
13	AUD300C Shutter (white)	
14	AUD300C Shutter (white)	24Vdc 150mA *3

\*1: Operation is the same as for the K2 relay. (However, since a start-checking function is not provided, do not use for combustion control, but only for combustion monitoring.)

\*2: Use a measuring instrument with an input impedance of 100K $\Omega$  min. To connect this device, use **IV** lead wires of 0.75mm<sup>2</sup> no longer than 10m.

\*3: Shutter does not have polarity.

## Cautions

- (1) Do not install the flame relay in the following locations:
  - Near the following chemicals or where their vapors are present: ammonia, sulfur, chlorine, ethylene compounds, acid, or any other corrosive gases.
  - Locations subject to water spray
  - Locations subject to continuous vibration
- (2) Before wiring, be sure to turn the power off. Touching terminals by mistake while the power is on may damage the device or result malfunction, or electrical shock.
- (3) After completing wiring, be sure to check all wiring connections. Incorrect wiring may damage the device or result in malfunction. In particular, as the flame detector (11(F)-12(G) terminals) has polarity, a reversed connection of F and G will result in the malfunction of the detector tube unit.
- (4) Use a dedicated packing case when transporting or storing this detector.
- (5) Do not bundle the power leads together with the flame detector signal lead wires, nor place them in the same conduit. Use independent cables.
- (6) Do not short-circuit the start input (terminals 2 and 3) to operate the device by turning the power supply on or off. This interferes with the device's start-checking function.
- (7) This device must be grounded with a resistance less than 100Ω according to the technical standards for electrical facilities. Be sure to ground the device.
- (8) Make sure that the ignition transformer high-voltage cables are properly connected in order to prevent faulty contacts. If there is a poor contact, radio frequency waves may be generated, resulting in errors from radio interference. Install the ignition transformer directly onto a metal part electrically connected to the burner.
- (9) Protection against induced lightning surge is not provided in this device. When adding surge protection, connect the protection device between terminal No.1 and the ground. Recommended surge absorber: Part No. 83968019-001
- (10) Turning the power supply on and off quickly may result in malfunction. Wait an interval of approx. 3s before turning the device on or off again.
- (11) Electricity may remain in No.11 (F) terminal even after the power supply is turned off. Touching the terminal within 1 min after the power has been turned off might result in electric shock. Do not touch the No.11 (F) terminal soon after the power has been turned off.
- (12) Combustion lamp output operates in the same way as K2. However, since start-checking is not provided, do not use the combustion lamp for combustion control, but only for combustion monitoring.



### RESTRICTIONS ON USE

This product has been designed, developed and manufactured for general-purpose application in machinery and equipment. Accordingly, when used in the applications outlined below, special care should be taken to implement a fail-safe and/or redundant design concept as well as a periodic maintenance program.

- Safety devices for plant worker protection
- Start/stop control devices for transportation and material handling machines
- Aeronautical/aerospace machines
- Control devices for nuclear reactors

Never use this product in applications where human safety may be put at risk.

*Specifications are subject to change without notice.*

**azbil**

## Yamatake Corporation Advanced Automation Company

1-12-2 Kawana, Fujisawa  
Kanagawa 251-8522 Japan  
URL: <http://www.azbil.com>

(H)  
1st Edition: Issued in Aug., 2002  
3rd Edition: Issued in Nov., 2008

*No part of this publication may be reproduced or duplicated without the prior written permission of Yamatake Corporation.*