Burner Controller BC-R25 Series User's Manual for Installation

Thank you for purchasing Burner controller BC-R25 Series.

This manual contains information for ensuring correct use of the BC-R25 Series. It also provides necessary information for installation, maintenance, and troubleshooting.

This manual should be read by those who design and maintain devices that use the BC-R25 Series.

Be sure to keep this manual nearby for handy reference.

Please read the "Terms and Conditions" from the following URL before ordering or use:

http://www.azbil.com/products/bi/order.html

This device is not packaged with a sub-base.

To use it, you must have a BC-R05A100 sub-base, which is sold separately.

NOTICE

Be sure that the user receives this manual before the product is used. Copying or duplicating this user's manual in part or in whole is forbidden. The information and specifications in this manual are subject to change without notice.

Considerable effort has been made to ensure that this manual is free from inaccuracies and omissions. If you should find an error or omission, please contact the azbil Group.

In no event is Azbil Corporation liable to anyone for any indirect, special or consequential damages as a result of using this product.

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SAFETY PRECAUTIONS

Safety precautions are for ensuring safe and correct use of this product, and for preventing injury to the operator and other people or damage to property. You must observe these safety precautions. Also, be sure to read and understand the contents of this user's manual.

Warnings are indicated when mishandling this product might result in death or serious injury to the user.

Cautions are indicated when mishandling this product might result in minor injury to the user, or physical damage to this product.

WARNING

- Use this device with combustion equipment that is started and 0 stopped at least once in a 24-hour period
- This device cannot be used for equipment with combustion con- \bigcirc tinuing for 24 hours or longer.
- This device has functions that are extremely important for the safe operation of combustion equipment. Use it correctly in accordance with the user's manual.
- Check the model number carefully and check that the sequence timing is as specified by the combustion equipment manufacturer. Installing an incorrect model can result in an explosion hazard.
- Terminal 14 (F) retains an electrical charge even after the power is turned off. Do not touch terminal 14 (F) even after turning the power off. Doing so may result in an electric shock.
- Do not start regular operation of equipment without first completing the trail-run adjustments for this device, as well as the tests specified by the equipment manufacturer. \bigcirc
- Do not disassemble this device. \bigcirc Doing so may cause malfunction, device failure, or electric shock.
- If the system is locked out, do not reset it until the cause of the 0 problem has been eliminated
- Do not reset this device from a remote location. If it is reset from a location where it is difficult to confirm the safety of \odot
- bustion, there is a risk of explosion.
- \bigcirc Do not use monitor output or alarm relay output as safety output.
- This device has a limited product life. Beyond the product life, the risk of device failure becomes higher. Replace this device within its product life

Use this device correctly within the range of the rated specifications A stated in the user's manual Not doing so may cause device failure or malfunction.

- Make sure that the flame detector does not detect the ignition A spark. If the flame detector can detect the spark, change the detector's line of sight or change the ignition electrode's position.
- Do not connect a load that exceeds the rating stated in the specifications to the control load terminals (terminals 2-1, 2-6, 2-7, or 2-8), and do not short-circuit the load. Doing so will burn out the internal fuse, making the device unusable.

UNPACKING					
Model number	Product name	Quantity	Notes		
BC-R25	Burner Controller	1	The sub-base is sold separately		
CP-UM-5789E	CP-UM-5789E User manual		This document		
81429509-001	Code label for the 7-seg-	1			
	ment LED display				
-	Dedicated pin plug	1			

Related documents -

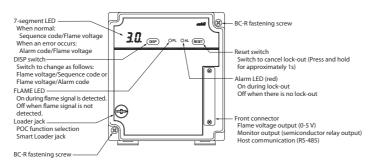
CFor details on operations, calibration and maintenance, refer to Section CP-SP-1388E.

OVERVIEW

BC-R25 series burner controllers are combustion safety controllers specifically designed for batch operation (systems which start and stop at least once within 24 hours), ensuring safety for oil and gas burners with on/off control and by automatic ignition and combustion supervision.

- JIS-compliant safety design
- POC (proof of closure) function based on shutoff valve closure confirmation switch input
- 7-segment display for sequence codes and alarm codes
- Alarm reset can be done by external signal (contact input)
- Host communication (RS-485) allowing remote observation of status
- DIN rail mounting and sub-base structure for easy installation and replacement

NAMES OF PARTS



MODEL SELECTION

Compatible Flame Detector (sold separately)

UV sensor

Model number	Name
AUD15C1000	Advanced UV Sensor Tube Device
AUD100C100_	Advanced UV flame detector (Lead wire model without
	AUD15C)
AUD100C1000-A15	Advanced UV flame detector (Lead wire model with AUD15C)
AUD110C100_	Advanced UV flame detector (Terminal block model without
	AUD15C)
AUD110C1000-A15	Advanced UV flame detector (Terminal block model with
	AUD15C)
AUD120C120_	Advanced UV flame detector (1/2-inch mounting model with-
	out G1/2 adapter)
AUD120C121_	Advanced UV flame detector (1/2-inch mounting model
	included G1/2 adapter)
	with inspection record (with data), T: tropicalization (AUD110C only), rd (with data) + tropicalization (AUD110C only)

• Flame rod (Ionization)

Model number	Product name		
C7007A	Flame rod holder		
C7008A	Flame rod assembly		

Optional Parts (sold separately)

Model number	Product name
BC-R05A100	Dedicated BC-R sub-base (a necessary requirement for the BC-R25
	series)
81447514-001	Connector for front wiring
	Weidmueller BL3.5/11F
	Compatible wire: 0.2-1.5 mm ² (AWG28-14)
81447514-002	Connector for front wiring (for right side wiring)
	Weidmueller BL3.5/11/270F
	Compatible wire: 0.2-1.5 mm ² (AWG28-14)
81447515-001	Side boards (2)
SLP-BCRJ71	Smart Loader Package (no cable)
81441177-001	USB loader cable
FSP136A100	Analog flame meter
81447519-001	Jack cover (1)
81447531-001	Front connector cover (includes mounting screw)

MOUNTING

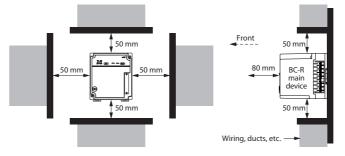
Ensure you turn off the power of this device and all auxiliary devices when mounting, removing or connecting the wires of this device. There is a risk of electrical shock.

- Mounting, wiring, maintenance, inspection, calibration, etc. should be carried out by a professional with technical training in combustion systems and flame safeguard control devices.
- Do not install where exposed to any of the following:
- · Certain chemicals or corrosive gases (ammonia, sulfur, chlorine, ethylene compounds, acids, etc.)
 - Dripping water or excessive humidity
 - High temperatures
 - Sustained long-term vibration

For mounting and wiring, follow the instructions in this user's Ω manual or in the combustion equipment manufacturer's manual.

Cautions regarding Installation

• Take space 50 mm above and below, 50 mm to the left and right, and 80 mm to the front, as space for removal, wiring, and maintenance. Also, do not install this device close to electric power devices or other sources of heat.



- This device must install within a grounded and conductive control panel to ensure safety.
- Do not pull the wiring while it is attached to the device. Doing so can cause failures of the connectors or this device itself.

TRIAL OPERATION MODE

C For details on the trial operation mode, refer to Section CP-SP-1388E.

FUNCTION SELECTION MODE

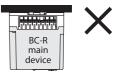
For details on the POC selection method and various settings, refer to Section CP-SP-1388E.

Installation Orientation

Attach the device in the orientation shown below.

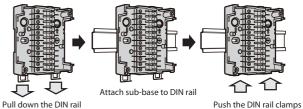


Do not install it in the orientations illustrated below.



Mounting on DIN Rail

- (1) Pull down the sub-base's DIN rail clamps.
- (2) Attach to the DIN rail while checking above and below the sub-base.
- (3) Push up the DIN rail clamps to attach the sub-base (sold separately) to the DIN rail.



Mounting in a Panel

clamps

(1) Drill two M4 screw holes into the panel.



(2) Use screws to mount the sub-base on the panel. (Maximum tightening torque: $1.2N \cdot m$)

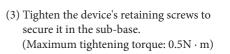
Mounting / Removing the Device

Mounting

(1) Align the indentation in the center of the top of this device with the projection on the sub-base.



(2) Once aligned as in (1), push straight down wards slowly.



Removal

- (1) Remove the retaining screws from this device.
- (2) Pull it out horizontally while holding down the sub-base.



(Units: mm)

upward to fix in place

WARNING

Connect the load (ignition transformer, solenoid valve, etc.) directly 0 to the output terminals of this device. If it is not directly connected, combustion safety cannot be ensured.

- Follow all applicable regulations when doing the wiring work.
- Run the high-voltage ignition transformer cable separately and 0 keep it at least 30 cm away from the device.
- Make sure that ignition transformer high-voltage cables are properly connected to prevent faulty contact. Faulty contact can generate high-frequency radio waves, causing malfunction.
- The ignition transformer ground lead should be connected directly U to the burner itself or to a metallic part electrically connected to the burner.
- Keep power lines and ignition transformer high-voltage cables separate from the flame detector wires. 0
- Supply power at the voltage indicated on the model number label of the device. 0
- In keeping with technical standards for electrical equipment, the burner frame must be connected to an earth ground by a wire having a resistance of less than 100 Ω . 0
- After wiring work, be sure to check that the wiring is correct. Incorrect wiring can cause damage or malfunction. 0
- If the wires from this device exceed the recommended length, to 0 prevent malfunction due to external electrical noise, take measures such as keeping power lines away from the input lines between the control panel and the burner controller. After wiring, check that the equipment is operating properly.
- Be sure to connect non-voltage contacts to the inputs of this device (terminals 16-24).
- Make sure that loads connected to the terminals do not exceed the \bigcirc rating indicated in the specifications.
- When discarding this product, dispose of it as industrial waste, following local regulations.
- After the power has been turned ON, leave sufficient time before checking the output. This device does not operate for about 8 seconds after the power has been turned ON. A
- If there is an inverter or the like that generates strong electrical noise near this device, take noise-suppression measures, referring to the user's manual for the noise-generating equipment.
- Do not design instrumentation that shuts off the power to this device as soon as alarm output is generated. Doing so can corrupt this device's operation history records. \bigcirc
- Do not connect a load that exceeds the rating stated in the speci-fications to the control load terminals (terminals 2–1, 2–6, 2–7, or 2–8), and do not short-circuit the load. Doing so will burn out the internal fuse, making the device unusable.

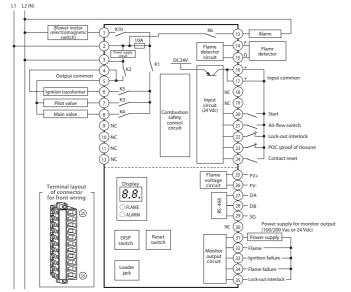
Wiring of the Flame Detector

Connect terminal F of the AUD110C Advanced Ultraviolet Flame De-0 tector to terminal 14 (F), and connect terminal G to terminal 15 (G). For the AUD100C/120C, connect the blue signal lead to terminal 14 (F), and the white lead to terminal 15 (G). If the power is turned ON with incorrect wiring, the AUD15C tube unit will be damaged.

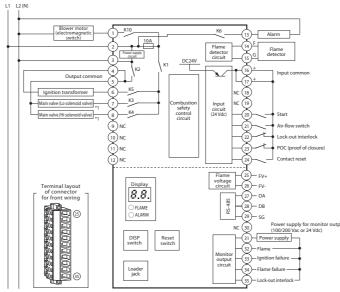
ALARM CODES

Display	Name	Description		
<i>E0</i>	Interlock error	Lock-out interlock operated		
Εł	False flame	The flame signal is detected for 5 s during pre-purge		
53	Air-flow switch error (1)	The air-flow switch turned Off during combustion		
83	Air-flow switch error (2)	The air-flow switch stayed On for 180 s during start check		
		The air-flow switch stayed Off for 180 s during pre-purge		
85	Ignition failure	Ignition could not be detected with ignition trial		
E7	Flame failure	The flame signal disappeared in the sequence after ignition trial		
E8	POC (proof of closure) error	The shutoff valve closure check switch was detected to be Off (open) when the main valve was closed		
		The shutoff valve closure check switch was detected to be On (closed) when the main valve was open		
E ዋ + Sub-code (2-digit)*	Device error	Abnormal voltage detected in output from the ignition transformer, pilot valve, or main valve, etc.		

- Example of Wiring Connection with External Device
- Interrupted pilot type



Direct ignition type



- Note Use reset (terminal 24) input in isolation. It cannot be used in conjunction with other BC-R contact reset inputs. Output common (terminals 4, 5) and input common (terminal 16, 17) cannot be used
 - in conjunction with other BC-R.
 - *1 Content in () describes the situation when three-position (Off-Lo-Hi) control is used. If other than three-position control is used, connect to main valve (terminal 7).

Display

92

py

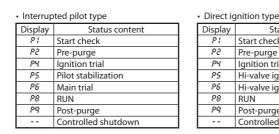
PS

P5

*P*9

P8 RUN

SEQUENCE CODES

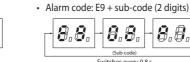


• Examples of sequence codes and alarm codes

8.8.

Alarm code: E0-E8

8.8.



Start check

Pre-purge

Post-purge

Ignition trial

Hi-valve ignition

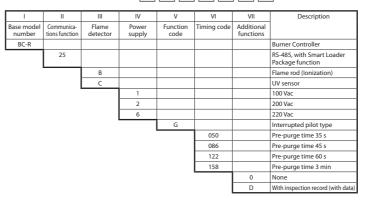
Controlled shutdowr

Status content

Hi-valve ignition standby

Interrupted pilot type

I II III IV V VI VII Example: BC-R25B1G0500



SPECIFICATIONS

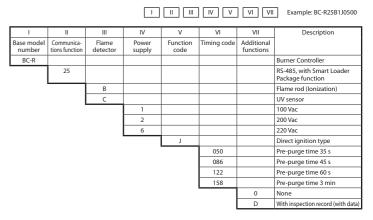
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Vide or above Plane voltage output range: 0.2 - 4.5 Vide Input Start, lock-out interlock, contact reset, air-flow switch, POC (shutoff valve proof of closure) Each input is a non-voltage contact input, with allowable contact resistance up to 500 Ω Life 10 years when used for day, or 100,000 start/stop cycles (at 25 °C, room humidity, rated voltage) Operating Ambient temperature -20 to +60 °C Ambient temperature -20 to i -60 °C Mounting angle 0-9.8m/3 10 years when used for ady, or 100,000 start/stop cycles (at 25 °C, room humidity, rated voltage) Shock 0-9.8m/3 0.3 mg/m ³ or less Shock 0-9.8m/3 0.3 mg/m ³ or less General specifica- tions Protection rating IP40 (with sideboards (81447515-001) attached to the sub-base (8C-R05)) Operating Operating IP40 (with sideboards (81447515-001) attached to the sub-base (8C-R05)) Operating Case color Black Case color Black Case color Case color Black Case color Complant with SC 9730-25:2010 (Automatic Electrical Controls For Household And Similar Use - Part 1: Sent Particular Requirements for Automatic Electrical Burner Control Systems) Complant with SC 9730-1:2010 (Automatic Electrical Controls For Household And Similar Use			Flame-out detection: 0.2-0.6 Vdc Flame-out detection: 0.0-0.2						
Each input is a non-voltage contact input, with allowable contact resistance up to 500 Ω Ufe 10 years when used for sight hours per day, or 100,000 start/stop cycles (at 25 °C, room humidity, rated voltage) Operating condition Ambient temperature 20 to 460 °C Ambient humidity 10-9968H (no condensation) Vibration 0-32 m/s² (10-150 Hz, 1 octawe/minute, 10 cycles, in each of XY2 directions) Shock 0-9.8m/s² Mounting angle Reference plane +/-10° Dist 0.3 mg/m² or less Ceneral periodic Protection rating IP40 (with sideboards (81447515-001) attached to the sub-base (8C-R05)) IP10 (sub-base (8C-R05) only) Overvoltage category II Pollution degree PD2 Case color Black Case color Black Case color Vertical or horizontal However, for horizontal attachment, 7 segment display can only be mounted so that it faces directly overhead Mounted orientation Vertical or horizontal However, for horizontal attachment, 7 segment display can only be mounted so that it faces directly overhead UNING types and max. wiring length 4.970-25-2010 (Automatic Electrical Controls For Household And Similar Use - Part 2-5-Partical Requirements for Automatic Electrical Burner Control Systems) Complant with JS C 9730-1:2010 (Automat		Flame voltage output	2 Vdc or above 21			2 Vdc or	2 Vdc or above		
Life 10 years when used for eight hours per day, or 100,000 start/stop cycles (at 25 °C, room humidity, rated voltage) Operating conditions Ambient temperature -20 to +60 °C Ambient humidity 10-90%RH (no condensation) Vibration 0-3.2 m/s ² (10-150 Hz, 1 octave/minute, 10 cycles, in each of XYZ directions) Shock 0-98m/s ² Mounting angle Reference plane +/-10° Dust 0.3 mg/m ³ or less General specifica- tions Protection rating IP40 (with sideboards (81447515-001) attached to the sub-base (8C-R05)) IP10 (sub-base (8C-R05) only) Overonlage category II Pollution degree PD2 Case color Black Case color Black Case color Sub-base and main device Mounted orientation Vertical or horizontal attachment, 7 segment display can only be mounted so that it faces directly overhead (DIN rail mounting or direct mounting through base screw holes) Standards JS 5 C9730 - 2:52010 (Automatic Electrical Controls For Household And Similar Use - Part 1: Serreal Requirements) Wring types and max. wiring length -Start air-flow switch, lock-out interlock, POC (shutoff valve proof of closure) Copper IV wire with 600V vinyi insulation, 1.25 mm ² , maximum wiring length: 10 m - AUD100 Series (F, G) Copper IV wire with 600V vinyi insulation, 1.25 m		Input							
Operating conditions Ambient temperature -20 to +60 °C Ambient humidity 10-90%RH (no condensation) Vibration 0-3.2 m/s² (10-150 Hz, 1 octave/minute, 10 cycles, in each of XYZ directions) Shock 0-9.8m/s² Mounting angle Reference plane +/-10° Dust 0.3 mg/m³ or less Protection rating IP40 (with sideboards (81447515-001) attached to the sub-base (8C-R05)) IP10 (sub-base (8C-R05) only) Overvoltage category II Pollution degree PD2 Case color Black Case material Denatured PPE resin (UL94-V0 PTI Material group IIIa) Structure Sub-base and main device Mounted orientation Vertical or horizontal However, for horizontal However, for horizontal However, for horizontal attachment, 7 segment display can only be mounted so that it faces directly overhead (DIN rail mounting or direct mounting through base screw holes) Standards JIS C 3793-12010 (Automatic Electrical Controls For Household And Similar Use - Part 1: General Requirements for Automatic Electrical Control Systems) Complement with JIS C 3793-12010 (Automatic Electrical Control Sor Household And Similar Use - Part 1: General Requirements Wring types and max. wiring length: - Start air-Row switch, lock-out interfoc		Life	10 years when used for eight hours per day, or 100,000 start/stop cycles						
condition Ambient humidity 10-90%RH (no condensation) Vibration 0-3.2 m/s ² (10-150 Hz, 1 octave/minute, 10 cycles, in each of XVZ directions) Shock 0-9.8m/s ² Mounting angle Reference plane +/-10° Dust 0.3 mg/m ³ or less General specifica- tions Protection rating IP40 (with sideboards (81447515-001) attached to the sub-base (BC-R05)) IP40 (sub-base (BC-R05) only) Overvoltage category II Pollution degree PD2 Case color Black Case color Black Case color Sub-base and main device Mounted orientation Vertrizont do troizontal However, for horizontal However, for horizontal However, for horizontal (DIN rail mounting or direct mounting through base screw holes) Standards JIS C 9730-2-52010 (Automatic Electrical Controls For Household And Similar Use - Part 1: Senticular Requirements for Automatic Electrical Burner Control Systems) Compliant with JIS C 9730-1:2010 (Automatic Electrical Controls For Household And Similar Use - Part 1: Ceneral Requirements for Automatic Electrical Burner Control Systems) Compliant with JIS C 9730-1:2010 (Automatic Electrical Controls For Household And Similar Use - Part 1: Ceneral Requirements for Sen, maximum wiring length: 100m - Contact reset Wirning types and max. wiring length Start air-flow switch, lock-out interlock, POC (shutoff	Operating	Ambient temperature		nidity, rated voltage)				
Vibration 0-3.2 m/s ² (10-150 Hz, 1 octave/minute, 10 cycles, in each of XYZ directions) Shock 0-9.8m/s ² Mounting angle Reference plane +/10° Dust 0.3 mg/m ³ or less Specifica- tions Protection rating IP40 (with sideboards (81447515-001) attached to the sub-base (BC-R05)) IP10 (sub-base (BC-R05) only) Overvoltage category II Pollution degree PD2 Case color Black Case color Black Case color Black Structure Sub-base and main device Mounted orientation Vertical or horizontal However, for horizontal attachment, 7 segment display can only be mounted so that it faces directly overhead IDIN rail mounting or direct mounting through base screw holes) Standards IDI C Sorgal - S2010 (Automatic Electrical Controls For Household And Similar Use - Part 1: General Requirements for Automatic Electrical Burner Control Systems) Complant with JIS C 9730-1:2010 (Automatic Electrical Controls For Household And Similar Use - Part 1: General Requirements for skinas and use - Part 1: General Requirements for skinas and main device Wiring types and max. wiring length • Start, i=forto write, hock-out interlock, POC (shutoff valve proof of closure) Copper IV wire with 600V vinyl insulation, 1.25 mm ² . Recommended condition: 20 on rels, maxinum wiring length: 10 m •									
Shock 0-9.8m/s ² Mounting angle Reference plane +/-10° Dust 0.3 mg/m ³ or less General specification Protection rating IP40 (with sideboards (81447515-001) attached to the sub-base (BC-R05)) IP10 (sub-base (BC-R05) only) Overvoltage category II Pollution degree PD2 Case color Black Case material Denatured PPE resin (UL94-V0 PTI Material group IIIa) Structure Sub-base and main device Werical or horizontal However, for horizontal attachment, 7 segment display can only be mounted so that it faces directly overhead (DIN rail mounting or direct mounting through base screw holes) Standards JIS C 9730-2:52010 (Automatic Electrical Controls For Household And Similar Use - Part 1:5 e-Partical: 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 for Automatic Electrical Burner Control Systems) Dimensions W95 × H105 × D110mm Weight Approximately 600 g (incl. sub-base) Wiring types and max. wiring length • Start, i=fong wirkin, fondor wirkin, fondor wirkin, fondor wirkin, for G, G) Recinemended condition: 20 m or less, maxinum wiring length: 10 m • AUD100 Series (F, G) Copper IV wire with 600V viryl insulation, 1.25 mm ² , maximum wiring length: 10 m • AUD100 Series (F, G)									
Dust 0.3 mg/m³ or less General specifica- tions Protection rating IP40 (with sideboards (81447515-001) attached to the sub-base (BC-R05)) IP10 (sub-base (BC-R05) only) Overnoltage category II Pollution degree PD2 Case color Black Case color Black Case material Denatured PPE resin (UL94-V0 PTI Material group IIIa) Structure Sub-base and main device Mounted orientation Werical or horizontal However, for horizontal attachment, 7 segment display can only be mounted so that it faces directly orientical attachment, 7 segment display can only be mounted so that it faces directly compliant with JIS C 9730-2-52010 (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 1-5. Particular Requirements for Automatic Electrical Burner Control Systems) Compliant with JIS C 9730-1:2010 (Automatic Electrical Controls For Household And Similar Use - Part 1-5. Particular Requirements for sem, maximum wiring length: 100m Wiring types and max. wiring length • Start air-flow switch, lock-out interlock, POC (shutoff valve proof of closure) Copper IV wire with 600V vinyl insulation, 1.25 mm², maximum wiring length: 100m • Contact reset Copper IV wire with 600V vinyl insulation, 1.25 mm², maximum wiring length: 100m • Contact reset Copper IV wire with 600		Shock							
General specifica- tions Protection rating [P40 (with sideboards (81447515-001) attached to the sub-base (8C-R05)) [P10 (sub-base (8C-R05) only] Unervoltage category II Pollution degree PD2 Case color Black Case color Case color Structure Sub-base and main device Vertical or horizontal However, for horizontal attachment, 7 segment display can only be mounted so that it faces directly overhead Mounted orientation Vertical or horizontal However, for horizontal attachment, 7 segment display can only be mounted so that it faces directly overhead Standards JIS C 9730-25:2010 (Automatic Electrical Controls For Household And Similar Use - Part 2: S-Partical: 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 for Automatic Electrical Part 2: Spatial Part 1: General Requirements for Automatic Electrical Part 2: Spatial Part 1: General Requirements for Automatic Electrical Part 2: Spatial Part 1: General Requirements for Automatic Electrical Part 2: Spatial Part 1: General Requirements for Automatic Electrical Controls For Household And Similar Use - Part 1: General Requirements for Automatic Part 4: Spatial Part 1: General Requirements for Automatic Electrical Controls For Household And Similar Use - Part 1: General Requirements for Automatic Electrical Controls For Household And Similar Use - Part 1: General Requirements for Automatic Electrical Controls For Household And Similar Use - Part 1: General Requirements for Automatic Use Mate Copper IV wire with 6000 vinyl insulation, 1: Z5 m	1	Mounting angle							
specifica- tions IP10 (sub-base (BC-R05) only) Overoltage category II Pollution degree PD2 Case color Black Case color Black Structure Sub-base and main device Mounted orientation Vertical or horizontal However, for horizontal attachment, 7 segment display can only be mounted so that it faces directly overhead (DIN rail mounting or direct mounting through base screw holes) Standards JIS C 9730-252010 (Auromatic Electrical Controls For Household And Similar Use - Part 2-S: Particular Requirements for Automatic Electrical Controls For Household And Similar Use - Part 1: General Requirements for Automatic Electrical Controls For Household And Similar Use - Part 1: General Requirements for Automatic Electrical Controls For Household And Similar Use - Part 1: General Requirements for Automatic Electrical Structure Control Systems) Complement with JIS C 9730-122010 (Automatic Electrical Controls For Household And Similar Use - Part 1: General Requirements) Wring types and max. wiring length - Start, air-flow switch, lock-out interlock, POC (shutoff valve proof of closure) Copper IV wire with 600V vinyl insulation, 1.25 mm ² Recommended condition: 20 on relss, maximum wiring length: 100m - Contact reset Copper IV wire with 600V vinyl insulation, 1.25 mm ² , maximum wiring length: 10 m - AUD100 Series (F, G) Copper IV wire with 600V vinyl insulation, 1.25 mm ² , maximum wiring length: 100m - Recommended condition: 20 on relss, maximum wiring length: 30 m - Res 483 commended condition: 20 on relss, maximum wiring length: 30 m - Res 484 commended condition: 20 on r		Dust	0.3 mg/m ³ or less						
Vervising category III Pollution degree PD2 Case color Black Case color Black Case color Buck Structure Sub-base and main device Mounted orientation Vertical or horizontal However, for horizontal attachment, 7 segment display can only be mounted so that it faces directly overhead (DIN rail mounting or direct mounting through base screw holes) Standards JIS C 9730-252010 (Auronatic Electrical Controls For Household And Similar Use - Part 2-8; Particular Requirements For Automatic Electrical Control Sor Household And Similar Use - Part 1: General Requirements Dimensions W95 x H105 x D110mm Weight Approximately 600 g (incl. sub-base) Wring types and max. wiring length: -Start air-flow switch, lock-out interlock, POC (shutoff valve proof of closure) Copper IV wire with 600V vinyl insulation, 1.25 mm ² Recommended condition: 20 on relss, maximum wiring length: 100m - Contact reset Copper IV wire with 600V vinyl insulation, 1.25 mm ² , maximum wiring length: 10 m - AUD100 Series (F, G) Copper IV wire with 600V vinyl insulation, 1.25 mm ² , maximum wiring length: 10 m - AUD100 Series (F, G) Recommended condition: 20 on relss, maximum wiring length: 10 m - Recommended condition: 20 on relss, maximum wiring length: 10 m - Recommended condition: 20 on relss, maximum wiring length: 30 m - Re483 commended condition: 20 on relss, maximum wiring length: 30 m - Re4485 commended condition: 20 on relss, maximum wiring length: 30 m -	specifica-	Protection rating	IP40 (with sideboards (81447515-001) attached to the sub-base (BC-R05))						
Case color Black Case material Denatured PPE resin (UL94-V0 PTI Material group IIIa) Structure Sub-base and main device Mounted orientation Vertical or horizontal However, for horizontal attachment, 7 segment display can only be mounted so that it faces directly overhead (DIN rail mounting or direct mounting through base screw holes) Standards JIS C 9730-252010 (Auromatic Electrical Controls For Household And Similar Use - Part 2-S: Particular Requirements For Automatic Electrical Controls For Household And Similar Use - Part 1: General Requirements For Automatic Electrical Controls For Household And Similar Use - Part 1: General Requirements; Dimensions W95 x H105 x D110mm Weight Approximately 600 g (incl. sub-base) Wiring types and max. wiring length: - Start air-flow switch, lock-out interlock, POC (shutoff valve proof of closure) Copper IV wire with 600V vinyl insulation, 1.25 mm ² Recommended condition: 20 on relss, maximum wiring length: 100m - Contact reset Copper IV wire with 600V vinyl insulation, 1.25 mm ² , maximum wiring length: 10 m - AUD100 Series (F, G) Copper IV wire with 600V vinyl insulation, 1.25 mm ² , maximum wiring length: 10 m - Recommended condition: 20 on relss, maximum wiring length: 30 m - Reamerod (F, G) Recommended condition: 20 m or less, maximum wiring length: 30 m - Re4 as communications (B-wire system) 0.2 - Jamm ² Shielded twisted pair cable (recommended) Maximum wiring lengter, 500m - Flame voltage output signal circuit IV wire voltage output signal circuit IV wire voltage output signal circuit	tions	Overvoltage category							
Case material Denatured PPE resin (UL94-V0 PTI Material group IIIa) Structure Sub-base and main device Mounted orientation Vertical or horizontal diverse of horizontal attachment, 7 segment display can only be mounted so that it faces directly overhead (DIN rail mounting or direct mounting through base screw holes) Standards JIS C 9730-2-52010 (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 for Automatic Electrical Controls For Household And Similar Use - Part 1: General Requirements for Automatic Electrical Controls For Household And Similar Use - Part 1: General Requirements for Sestems Copper IV wire with 600V vinyl insulation, 1.25 mm ² Recommended condition: 20 on relses, maximum wiring length: 100m - Contact reset Copper IV wire with 600V vinyl insulation, 1.25 mm ² , maximum wiring length: 10 m - AUD100 Series (F, G) Copper IV wire with 600V vinyl insulation, 1.25 mm ² , maximum wiring length: 100m - Flame rod (F, G) RecTruct reset Copper IV wire with 600V vinyl insulation, 1.25 mm ² , maximum wiring length: 100m - Flame rod (F, G) RecTruct Vise with 600V vinyl insulation, 1.25 mm ² , maximum wiring length: 100m - Recommended condition: 20 on relses, maximum wiring length: 100m - Recommended condition: 20 on relses, maximum wiring length: 30 m - Re-485 communications (B-wire system) 0.21-Jmm ² Shielded twisted pair cable (recommended) Maximum wiring length: 500m - Flame voltage output signal circuit IV wire 0.25 mm ² of taper, max. wiring length 10 m			PD2						
Structure Sub-base and main device Mounted orientation Vertical or horizontal However, for horizontal attachment, 7 segment display can only be mounted so that it faces directly vorehead (DIN rail mounting or direct mounting through base screw holes) Standards JIS C 9730-25:2010 (Automatic Electrical Controls For Household And Similar Use - Part 2: S-Partical 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 for Automatic Electrical Controls For Household And Similar Use - Part 1: General Requirements for Automatic Electrical Controls For Household And Similar Use - Part 1: General Requirements for Automatic Electrical Controls For Household And Similar Use - Part 1: General Requirements for Automatic Electrical Controls For Household And Similar Use - Part 1: General Requirements) Wiring types and max. wiring length • Start 1:40 switch, Iock-out Interlock, POC (shutoff valve proof of closure) Copper IV wire with 600V vingl insulation, 1.25 mm ² Recommended condition: 20 m or less, maxinum wiring length: 10 m • AUD100 Series (F, G) Copper IV wire with 600V vingl insulation, 1.25 mm ² , maximum wiring length: 10 m • AUD100 Series (F, G) Recommended condition: 20 m or less, maxinum wiring length: 100m • Flame root (F, G) Recommended condition: 20 m or less, maxinum wiring length: 30 m • RS-485 communications (3-wire system) 0.2.1-5mm ² Shielded twisted pair cable (recommended) Maximum wiring length: 500m • Flame voltage output signal circuit IV wire 0.25 mm ² or larger, max. wiring length 10 m									
Mounted orientation Vertical or horizontal However, for horizontal attachment, 7 segment display can only be mounted so that it faces directly overhead (DIN rail mounting or direct mounting through base screw holes) Standards JIS C 9730-25:2010 (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) Dimensions W95 x H105 x D110mm Weight Approximately 600g (incl. sub-base) Wiring types and max. wiring length - Start, air-flow switch, lock-out interlock, POC (shutoff valve proof of closure) Copper IV wire with 600V vinyl insulation, 1.25 mm ² , maximum wiring length: 100m - Contact reset - Comper IV wire with 600V vinyl insulation, 1.25 mm ² , maximum wiring length: 10 m - AUD100 Series (F, G) Copper IV wire with 600V vinyl insulation, 1.25 mm ² , maximum wiring length: 10 m - AUD100 Series (F, G) Recommended condition: 20 on relses, maximum wiring length: 100m - Flame rod (F, G) Recommended condition: 20 no relses, maximum wiring length: 30 m - Re-483 commended condition: 20 no relses, maximum wiring length: 30 m - Re-483 commended condition: 20 no relses, maximum wiring length: 30 m - Re-484 commended condition: 20 no relses, maximum wiring length: 30 m - Re-484 commended condition: 20 no relses, maximum wiring length: 30 m - Re-485 commended condition: 20 no relses, maximum wiring length: 30 m - Re-485 commended condition: 20 no relses, maximum wiring length: 30 m - Re-484 commended condition: 20 no relses, maximum wiring length: 30 m - Re-485 commended conditis paterotable (recommended) Maximum wiring length: 500m<					rial group	IIIa)			
Wring types and max. wiring length									
Standards JIS C 9730-2-5:2010 (Automatic Electrical Controls For Household And Similar Use - Part 2-5: Particular Requirements For Automatic Electrical Bourre Control Systems) Compliant with JIS C 9730-2:2010 (Automatic Electrical Controls For Household And Similar Use - Part 1: General Requirements) Dimensions W95 x H105 x D 110nm Weight Approximately 600 g (incl. sub-base) - Start, air-flow switch, lock-out interlock, POC (shutoff valve proof of closure) Copper IV wire with 600V vingl insulation, 1.25 mm ² Recommended condition: 20 m or less, maximum wiring length: 10 m - Contact reset - Copper IV wire with 600V vingl insulation, 1.25 mm ² , maximum wiring length: 10 m - Foldmann of (F, G) - Contact reset - Recommended condition: 20 m or less, maximum wiring length: 10 m - Foldmann of (F, G) - Recommended condition: 20 m or less, maximum wiring length: 10 m - Recommended condition: 20 m or less, maximum wiring length: 10 m - Recommended condition: 20 m or less, maximum wiring length: 10 m - Recommended condition: 20 m or less, maximum wiring length: 100m - Recommended condition: 20 m or less, maximum wiring length: 30 m - Recommended condition: 20 m or less, maximum wiring length: 30 m - Recommended condition: 20 m or less, maximum wiring length: 30 m - Recommended condition: 20 m or less, maximum wiring length: 30 m - Recommended condition: 20 m or less, maximum wiring length: 30 m - Recommende		Mounted orientation	However, for horizontal attachment, 7 segment display can only be mounted so that it faces directly overhead						
Dimensions W95 x H105 x D110mm Weight Approximately 600 g (incl. sub-base) Wiring types and max. wiring length - Start, air-flow switch, lock-out interlock, POC (shutoff valve proof of closure) Copper IV wire with 600V vinyi insulation, 1.25 mm ² . Recommended condition: 20 m or less, maximum wiring length: 100m - Contact reset Copper IV wire with 600V vinyi insulation, 1.25 mm ² , maximum wiring length: 10 m - Contact reset Copper IV wire with 600V vinyi insulation, 1.25 mm ² , maximum wiring length: 10 m - AUD100 Series (F, G) Copper IV wire with 600V vinyi insulation, 1.25 mm ² , maximum wiring length: 100m - Flame rod (F, G) Reg-Trive Wire with 600V vinyi insulation, 1.25 mm ² , maximum wiring length: 100m - Reg-trive Ving with 600V vinyi insulation, 1.25 mm ² , maximum wiring length: 100m - Flame rod (F, G) Reg or the set of the				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 9730-12010 (Automatic Electrical Controls For Household And Similar Use -					
Weight Approximately 600 g (incl. sub-base) Wiring types and max. wiring length - Start, air-flow switch, lock-out interlock, POC (shutoff valve proof of closure) Copper IV wire with 600V vinyi Insulation, 1.25 mm² Recommended condition: 20 m or less, maximum wiring length: 100m - Contact reset - Opper IV wire with 600V vinyi Insulation, 1.25 mm², maximum wiring length: 10 m - AUDI OS series (F, G) - Obtact reset - Recommended condition: 20 m or less, maximum wiring length: 10 m - AUDI OS series (F, G) - Obtact reset - Gontact reset - Opper IV wire with 600V vinyi Insulation, 1.25 mm², maximum wiring length: 10 m - Flame rol (F, G) - Obtact reset - Recommended condition: 20 m or less, maximum wiring length: 100m - Recommended condition: 20 m or less, maximum wiring length: 30 m - RE- ARE communications (3-wire system) - 0.2-15mm² Shielded wisted pair cable (recommended) Maximum wiring length: 500m - Flame voltage output signal circuit IV wiring length: 500m									
Wiring types and max. wiring length 									
Copper IV wire with 600V vinyl insulation, 1.25 mm ² Recommended condition: 20 or of less, maximum wiring length: 100m • Contact reset Copper IV wire with 600V vinyl insulation, 1.25 mm ² , maximum wiring length: 10 m • AUD100 Series (F, G) Copper IV wire with 600V vinyl insulation, 1.25 mm ² , maximum wiring length: 100m • Flame rod (F, G) RG-11U (JAN standard: US DoD compliant specification) Or equivalent 5C2V, 7C2V (JS standard) Recommended condition: 20 on of less, maximum wiring length: 30 m • R6-485 communications (B-wire system) 0.21-5mm ² Shielded twisted pair cable (recommended) Maximum wiring length: 500m • Flame voltage output signal circuit IV wire voltage output signal circuit IV wire 0.25 mm ² or larger, max. wiring length 10 m			Start, air-flow switch, lock-out interlock, POC (shutoff valve proof of closure)						
RG-11U (JAN standard: US DoD compliant specification) Or equivalent 5C2V, JC2V (JIS standard) Recommended condition: 20 m or less, maximum wiring length: 30 m • 85-485 communications (3-wire system) • 0.2-1.5mm ² Shielded twisted pair cable (recommended) Maximum wiring length: 500m • Flame voltage output signal circuit IV IV			Recommended condition: 20 m or less, maximum wiring length: 100m - Contact rese Copper IV wire with 600V vinyl insulation, 1.25 mm ² , maximum wiring length: 10 m - AUD100 Series (F, G) Copper IV wire with 600V vinyl insulation, 1.25 mm ² , maximum wiring length: 100m						
			Or equivalent SC2V, 7C2V (JS standard) Recommended condition: 20 m or less, maximum wiring length: 30 m + RS-485 communications (3-wire system) 0.2-1.5mm ² Shielded twisted pair cable (recommended) Maximum wiring length: 500m + Flame voltage output signal circuit						
	*1 Item in () is								

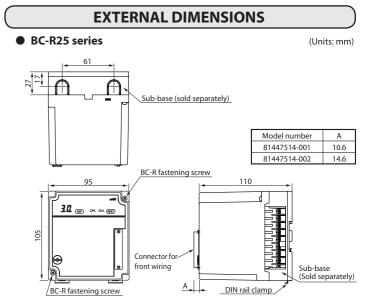
*2 If an inductive load is used, connect a protection circuit such as an RC snubber to the load in parallel

*For details, refer to Section CP-SP-1388E

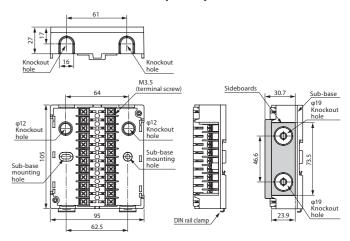


• Direct ignition type





BC-R05A100 sub-base (sold separately)/ 81447515 sideboard (sold separately)



azbil

Specifications are subject to change without notice. (09

Azbil Corporation Advanced Automation Company

1-12-2 Kawana, Fujisawa Kanagawa 251-8522 Japan

URL: http://www.azbil.com