Thank you for purchasing Burner controller BC-R35 Series. This manual contains important information for ensuring correct use of the BC-R35 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-R35 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

**WARNING**

- 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 not allowed without permission.

**CAUTION**

- This manual should be read by those who design and maintain devices that use the BC-R35 Series.

**OVERVIEW**

- BC-R35 series burner controllers are a safety control system specifically designed for batch operation systems, which start up and stop at least once within 24 hours, ensuring safety for oil and gas burners with proportional control with automatic ignition and combustion supervision.

- This product is designed with the following features:
  - POCl 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 codes 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
  - Models with low-fire stop function are available

**UNPACKING**

- Please refer to operations, calibration and maintenance, refer to Section CP-SP 1398E.

**MODEL SELECTION**

- **Compatible Flame Detector (sold separately)**
  - **Uv sensor**
  - **Visible light flame detector**

**Optional Parts (sold separately)**

- **Model number**
- **Product name**
- **Quantity**
- **Product name**

**Related documents**

- For details on operations, calibration and maintenance, refer to Section CP-SP 1398E.

**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 manual.

**WARNING**

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

**CAUTION**

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

**NOTICE**

- Not doing so may cause device failure or malfunction.
- Make sure that the flame detector does not detect the ignition 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 lead 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.

**WARNING**

- Do not disassemble this device.
- Do not disassemble this device. Doing so may cause malfunction, device failure, or electric shock.
- Do not start regular operation of equipment without first completing the trial-run adjustments for this device, as well as the tests specified by the equipment manufacturer.
- Do not install where exposed to any of the following:
  - Do not install it in the orientations illustrated below.

**MOUNTING**

- **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**
  - (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 · m)

- **Mounting / Removing the Device**
  - **Mounting**
    - (1) Align the indention in the center of the top of this device with the projection on the sub-base.
    - (2) Once aligned as in (1), push straight downwards slowly.

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

**INSTALLATION ORIENTATION**

- Attach the device in the orientation shown below.

**FUNCTION SELECTION MODE**

- For details on the POC selection method and various settings, refer to Section CP-SP 1398E.
**WARNING**

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

**CAUTION**

Follow all applicable regulations when doing the wiring work.

Run the high-voltage ignition transformer cable separately and keep it at least 30 cm away from the device. Make sure that the transformer's 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 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. Supply power at the voltage indicated on the model number label of the device.

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.

After wiring work, be sure to check that the wiring is correct. Incorrect wiring can cause damage or malfunction.

If the wires from this device exceed the recommended length, to 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 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.

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 an alarm output is generated. Doing so can corrupt this device's operation history records.

Do not connect a load that exceeds the rating stated in the specifications to the control terminal. Do not install the output terminals directly to the load. Doing so will burn out the internal fuse, making the device unusable.

### Wiring of the Flame Detector

**CAUTION**

The flame detector connected to this device has polarity. Check the “F” and “G” markings to be sure that the wiring is correct. If power is supplied to the burner controller when the wiring polarity is wrong, the flame detector may be damaged.

#### ALARM CODES

**Display**

-abilir

**Name**

- SW (polarity switch: 1: ON, 2: OFF)

**Description**

- Interrupted pilot type

**FLAME OUT**

- Interrupted pilot type

**SEQUENCE CODES**

- Direct ignition type

**Example of Wiring Connection with External Device**

(For outputs 1 to 24, sub-bases 25 to 35, front connector)

- Interrupted pilot type

- Direct ignition type

**Examples of sequence codes and alarm codes**

- Alarm code: 08.8.9

- Alarm code: 08.0.2 (2 digits)

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