

Endura AZ20, AZ25, AZ30

Reference air pump

Pumped reference air unit



Measurement made easy

Pumped reference
air unit

Introduction

This publication details the installation, connection and maintenance of an ABB Pumped Reference Air Unit. This pump supplies reference air to any of the following ABB oxygen probes:

- AZ20, AZ25, AZ20/ZFG2 replacement, ZFG2 and ZGP2

Note. The pump cannot be used with multiple probes simultaneously.

Pumped reference air unit models

4 pump models are available – see Table 1:

Description	Part No.
¼ BSP (Metric) 230 V AC 50/60 Hz AZ200 770	AZ200 770
¼ BSP (Metric) 115 V AC 50/60 Hz AZ200 771	AZ200 771
¼ NPT (Imperial) 230 V AC 50/60 Hz AZ200 772	AZ200 772
¼ NPT (Imperial) 115 V AC 50/60 Hz	AZ200 773

Table 1 ABB pumped reference air unit part numbers

Spares/replaceable items

Description	Part No.
Air pump – pre-2016: 230 V, 60 Hz	AZ200 768
Air pump – pre-2016: 115 V, 60 Hz	AZ200 769
Air pump – post-2016: 230 V, 60 Hz	AZ200 755
Air pump – post-2016: 115 V, 60 Hz	AZ200 756
Pre-2106 to post-2016 upgrade kit: 230 V, 60 Hz	AZ200 748
Pre-2106 to post-2016 upgrade kit 115 V, 60 Hz	AZ200 749
Internal air filter	0217463

Table 2 Spares/replaceable items

For more information

Further information is available from:

www.abb.com/analytical

or by scanning these codes:



Sales



Service

1 Health & Safety

To ensure that our products are safe and without risk to health, the following points must be noted:

- The relevant sections of these instructions must be read carefully before proceeding.
- Warning labels on containers and packages must be observed.
- Installation, operation, maintenance and servicing must only be carried out by suitably trained personnel and in accordance with the information given.
- Normal safety precautions must be taken to avoid the possibility of an accident occurring when operating in conditions of high pressure and / or temperature.

Safety advice concerning the use of the equipment described in this manual or any relevant Material Safety Data Sheets (where applicable) may be obtained from the Company address on the back cover, together with servicing and spares information.

Document symbols

Symbols that appear in this document are explained below:

DANGER

The signal word '**DANGER**' indicates an imminent danger. Failure to observe this information will result in death or severe injury.

WARNING

The signal word '**WARNING**' indicates an imminent danger. Failure to observe this information may result in death or severe injury.

CAUTION

The signal word '**CAUTION**' indicates an imminent danger. Failure to observe this information may result in minor or moderate injury.

NOTICE

The signal word '**NOTICE**' indicates potential material damage.

Note

'**Note**' indicates useful or important information about the product.

Product symbols

Symbols that may appear on this product are shown below:



Protective earth (ground) terminal.



Functional earth (ground) terminal.



This symbol, when noted on a product, indicates a potential hazard which could cause serious personal injury and/or death. The user should reference this instruction manual for operation and/or safety information.



This symbol, when noted on a product enclosure or barrier, indicates that a risk of electrical shock and/or electrocution exists and indicates that only individuals qualified to work with hazardous voltages should open the enclosure or remove the barrier.



Recycle separately from general waste under the WEEE directive.

Safety precautions

WARNING

The installation of the pump should be performed exclusively by personnel specialized and authorized to work on electrical installations, in accordance with relevant local regulations.

Information in this document is intended only to assist our customers in the efficient operation of our equipment. Use of this manual for any other purpose is specifically prohibited and its contents are not to be reproduced in full or part without prior approval of the Technical Publications Department.

Please read the entire document before unpacking, setting up, or operating this pump.

Pay particular attention to all warning and caution statements. Failure to do so could result in serious injury to the operator or damage to the equipment.

To ensure the protection provided by this equipment is not impaired, do not use or install this equipment in any manner other than that which is specified in this manual.

Electrical Safety – CEI / IEC 61010-1:2001-2

This equipment complies with the requirements of CEI / IEC 61010-1:2001-2 'Safety Requirements for Electrical Equipment for Measurement, Control and Laboratory Use' and complies with US NEC 500, NIST and OSHA.

If the equipment is used in a manner NOT specified by the Company, the protection provided by the equipment may be impaired.

WARNING

- Isolate electrical supplies to the system and reference air pump enclosure before proceeding with pump replacement.
- Isolate the air supply to the reference air pump (part numbers AZ200 770/AZ200 771/AZ200 772/AZ200 773) before replacing the pump unit.
- Observe all relevant health and safety procedures for equipment maintenance.

Product recycling and disposal (Europe only)



Electrical equipment marked with this symbol may not be disposed of in European public disposal systems after 12 August 2005. To conform to European local and national regulations (EU Directive 2002/96/EC), European electrical equipment users must now return old or end-of-life equipment to the manufacturer for disposal at no charge to the user. ABB is committed to ensuring that the risk of any environmental damage or pollution caused by any of its products is minimized as far as possible.

Information on ROHS Directive 2011/65/EU (RoHS II)



ABB, Industrial Automation, Measurement & Analytics, UK, fully supports the objectives of the ROHS II directive. All in-scope products placed on the market by IAMA UK on and following the 22nd of July 2017 and without any specific exemption, will be compliant to the ROHS II directive, 2011/65/EU.

Service and repairs

Other than the serviceable items listed in this document, none of the pump's components can be serviced by the user. Only personnel from ABB or its approved representative(s) is (are) authorized to attempt repairs to the system and only components formally approved by the manufacturer should be used. Any attempt at repairing the pump in contravention of these principles could cause damage to the pump and corporal injury to the person carrying out the repair. It renders the warranty null and void and could compromise the correct working of the pump and the electrical integrity or the CE compliance of the pump.

If you have any problems with installation, starting, or using the pump please contact the company that sold it to you. If this is not possible, or if the results of this approach are not satisfactory, please contact the manufacturer's Customer Service

Potential safety hazards

The following potential safety hazards are associated with operating the system:

- Electrical (line voltage)

2 Installation

Siting

Site the pump adjacent to the probe – see Figure 1 for environmental requirements.

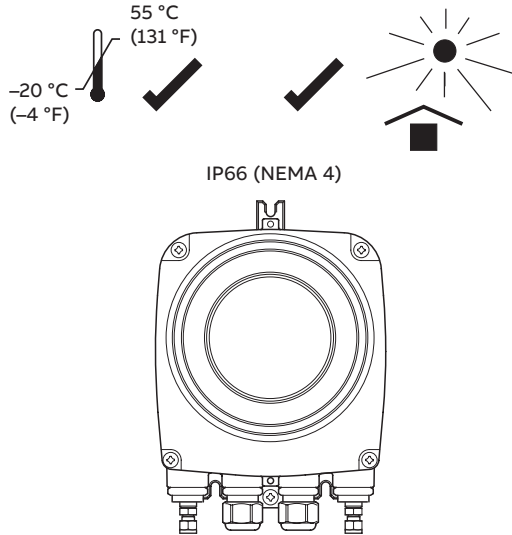


Figure 1 Environmental requirements

Mounting

Overall dimensions are shown in Figure 2.

- 1 Mount the pump on a flat secure surface using the 3 mounting lugs (A).

Dimensions in mm (in)

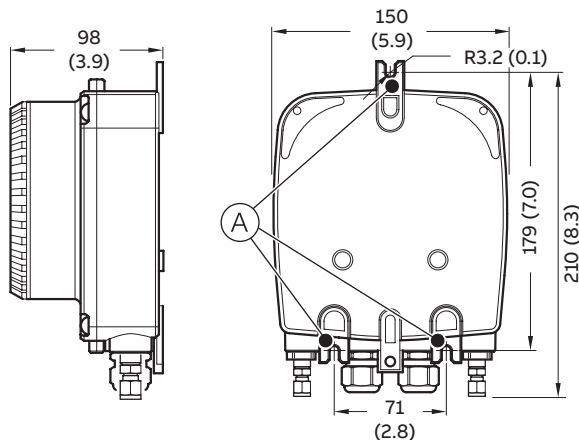


Figure 2 Dimensions and mounting lug locations

Electrical safety

⚠ WARNING

- Isolate the incoming power supply before accessing the pump or making connections.
- The pump is not fitted with a switch therefore a disconnecting device such as a switch or circuit breaker conforming to local safety standards must be fitted to the final installation. It must be fitted in close proximity to the pump within easy reach of the operator and must be marked clearly as the disconnection device for the pump.
- Electrical installation and earthing (grounding) must be in accordance with relevant national and local standards.
- Use cable appropriate for the load currents: 3-core cable rated 5A and 90 °C (194 °F) minimum, that conform to either IEC 60227 or IEC 60245. The terminals accept cables from 0.8 to 2.5 mm² (18 to 14 AWG).
- The pump conforms to Installation Category II of IEC 61010.
- After installation, there must be no access to live parts, for example, terminals.
- If the pump is used in a manner not specified by the Company, the protection provided by the equipment may be impaired.
- All equipment connected to the pump's terminals must comply with local safety standards (IEC 60950, EN61010-1).

⚠ CAUTION

- Always route power cables and air lines separately.
- Make connections only as shown.
- Maintain Environmental Protection at all times.
- Ensure the seal and mating surfaces are clean to maintain environmental rating.
- Conduit connections must provide cable entry sealing.
- Ensure cable glands are tightened after wiring. Do not overtighten the plastic cable glands to avoid destroying their sealing properties. Initially, tighten finger-tight, then a further ½ to ¾ turn using a suitable spanner or wrench.
- Fit a blanking plug where required.
- Inductive loads must be suppressed or clamped to limit voltage swings.

Accessing the terminal block

Referring to Figure 3:

- 1 Loosen the 4 pump cover retaining screws (A).
- 2 Remove the pump cover (B).
- 3 Loosen cable gland (C) to prepare for the incoming power supply cable.

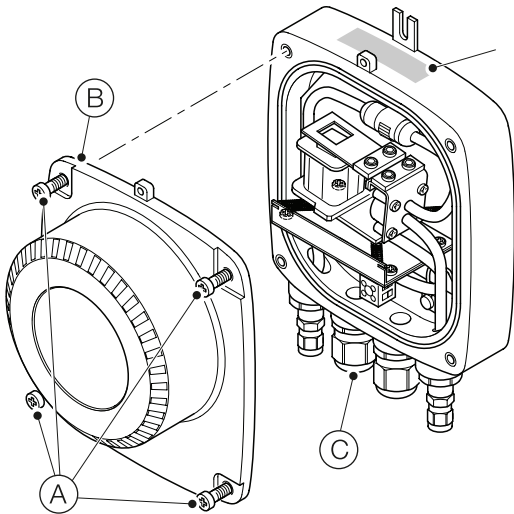


Figure 3 Accessing the terminal block

Electrical connections

Preparation

Referring to Figure 4:

- 1 Prepare the incoming power supply cable as follows:
 - a cut the outer sheath back to leave 100 mm (4.0 in.) sleeved wires (A)
 - b cut the sleeved wires back to leave 5 mm (0.2 in.) tails (B)
- 2 Pass the cable through cable gland (C).

Making connections

Referring to Figure 4, make mains connections as detailed in steps 1 to 5. The mains power supply must be 115 or 230 V AC, 50/60 Hz depending on the pump model (refer to Table 1, page 1).

- 1 Prepare the incoming power supply cable as follows:
 - a cut the outer sheath back to leave 100 mm (4.0 in.) sleeved wires (A)
 - b cut the sleeved wires back to leave 5 mm (0.2 in.) tails (B)
- 2 Pass the cable through cable gland (C).
- 3 Connect the neutral (blue wire (D)) to the terminal block to match the existing connection.
- 4 Connect the earth wire (E) to the pump's internal earth connection.
- 5 Connect the live (brown) wire (F) to the terminal block to match the existing live connection.

⚠ WARNING

Ensure the live (brown) wire is protected with a 1.6 A Type F fuse.

- 6 Refit the pump cover by reversing the procedure in Accessing the terminal block.

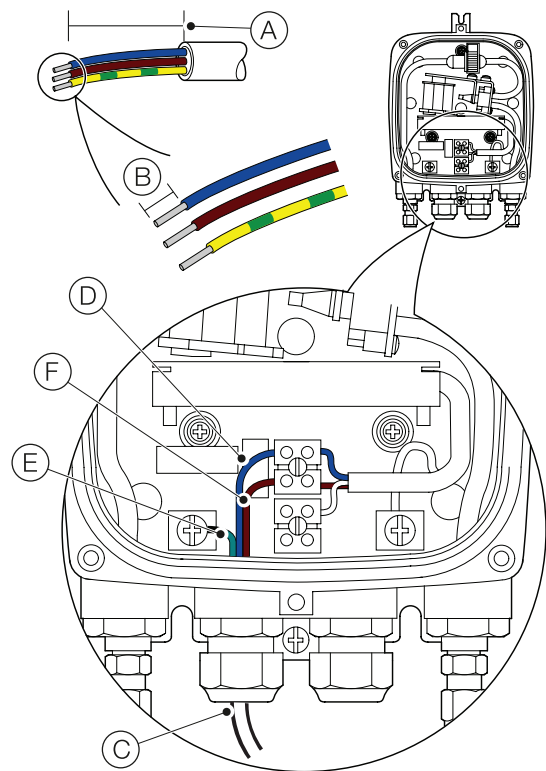


Figure 4 Electrical Connections

...2 Installation

Reference air connections

CAUTION

It is important that air to the pump inlet is clean and dry. Failure to observe this requirement causes damage to both the pump and the probe.

Referring to Figure 5:

- 1 If necessary, connect a pipe to the pump (suction) inlet (A) and ensure the other end of the pipe is located in a clean, dry area.
- 2 Connect the pumped reference air outlet (B) directly to the reference air inlet on the probe – refer to individual probe manuals for reference air connection details.
- 3 A flow restrictor (C) in the pump outlet line ensures the correct flow is delivered without further regulation from the pump. Ensure the flow restrictor is in place to protect pump components.

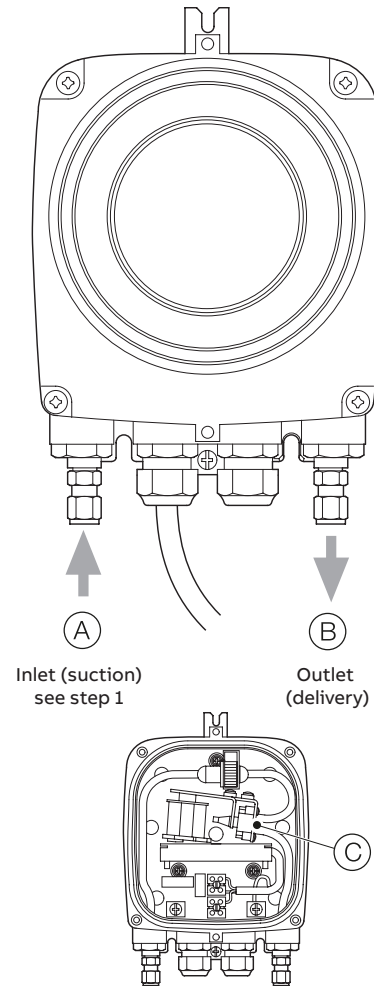


Figure 5 Pumped reference air unit inlet and outlet

3 Maintenance

Replacing the air filter

NOTICE

Isolate the pump from power and air supplies before replacing the air filter.

- 1 Remove the pump cover – see **Accessing the terminal block**, page 5.

Referring to Figure 6:

- 2 Disconnect tube (A) from air filter (B).
- 3 Disconnect tube (C) from air filter (B).
- 4 Release clip (D) and carefully remove air filter (B) by pulling it out of the clip.
- 5 Discard air filter (B).
- 6 Fit a new filter by reversing steps 1 to 4.

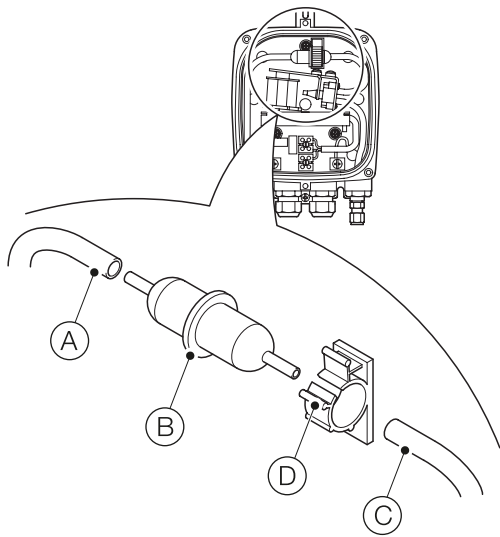


Figure 6 Replacing the air filter

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