

ABB MEASUREMENT & ANALYTICS | OPERATING INSTRUCTION | OI/ADS430/EZCLN-EN REV. B

Aztec ADS430 EZCLEAN Compressed air supply unit



Measurement made easy

— Compressed air supply unit

Introduction

The Aztec ADS430 EZCLEAN compressed air supply unit is a rugged, reliable cubicle that delivers compressed air to an ABB compressed air adaptor nozzle (part no. ADS430170) fitted to the probe or to an ABB probe flowcell (part no. ADS430160).

The air supply (interval/type/duration/frequency/ on-off sequencing) can be configured at the Aztec AWT440 transmitter to enable automatic/scheduled cleaning of the probe. .

For more information

Publications for the associated Aztec AWT440 transmitter and Aztec ADS430 probe are available for free download from:

www.abb.com/measurement

or by scanning these codes:





ADS430 probe

AWT440 transmitter

Search for or click on

Commissioning Instruction Aztec AWT440 Multi-input transmitter	<u>CI/AWT440-EN</u>
Operating Instruction Aztec AWT440 Multi-input transmitter	OI/AWT440-EN
Operating Instruction Aztec ADS430 Optical dissolved oxygen probe	OI/ADS430-EN
Installation Procedures Aztec ADS430160 Flowcell pipeline mounting assembly	<u>INF14/157-EN</u>
Installation Procedures Aztec ADS430170 Compressed air adaptor	<u>INF14/158-EN</u>

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1 Health & Safety

1.1 Document symbols

Symbols that may appear in this document are shown below:



DANGER – Serious damage to health / risk to life

This symbol in conjunction with the signal word 'DANGER' indicates an imminent danger. Failure to observe this safety information will result in death or severe injury.



DANGER - Serious damage to health / risk to life

This symbol in conjunction with the signal word 'DANGER' indicates an imminent electrical hazard. Failure to observe this safety information will result in death or severe injury.



WARNING - Bodily injury

This symbol in conjunction with the signal word 'WARNING' indicates a potentially dangerous situation. Failure to observe this safety information may result in death or severe injury.



WARNING – Bodily injury

This symbol in conjunction with the signal word 'WARNING' indicates a potential electrical hazard. Failure to observe this safety information will result in death or severe injury.

CAUTION – Minor injuries

This symbol in conjunction with the signal word 'CAUTION' indicates a potentially dangerous situation. Failure to observe this safety information may result in minor or moderate injury. The symbol may also be used for property damage warnings.

NOTICE - Property damage

This symbol indicates a potentially damaging situation. Failure to observe this safety information may result in damage to or destruction of the product and / or other system components.

IMPORTANT (NOTE)

This symbol indicates operator tips, particularly useful information or important information about the product or its further uses. The signal word 'IMPORTANT (NOTE)' does not indicate a dangerous or harmful situation.

1.2 Safety precautions

Be sure to read, understand and follow the instructions contained within this manual before and during use of the equipment. Failure to do so could result in bodily harm or damage to the equipment.

WARNING – Bodily injury Installation, operation, maintenance and servicing must be performed:

- by suitably trained personnel only
- in accordance with the information provided in this manual
- in accordance with relevant local regulations

1.3 Potential safety hazards

1.3.1 Electrical – high voltage

The Aztec ADS430 EZCLEAN air compressor unit requires a 230 or 115 V AC mains supply to operate. A mains isolation switch must be fitted in the supply to the unit.

1.3.2 Compressed air supply

The Aztec ADS430 EZCLEAN system generates compressed air up to a pressure of 50.7 psi(g) / 3.5 bar(g) maximum.

- do not use compressed air for any other purpose than that for which it is provided
- never direct a stream of compressed air towards your body or the body of any other person
- when handling / connecting compressed air lines:
 - the correct safety procedures must be observed
 - suitable PPE must be worn (goggles / gloves / overalls)

1.3.3 Weight

The Aztec ADS430 EZCLEAN air compressor unit weighs approximately 10.3 kg (22.6 lbs.). The unit must be lifted only using appropriate lifting equipment / personnel and in accordance with relevant Health & Safety procedures and requirements.

1.4 Safety standards

This product has been designed to satisfy the requirements of IEC61010-1:2010 3rd edition 'Safety Requirements for Electrical Equipment for Measurement, Control and Laboratory Use' and complies with US NEC 500, NIST and OSHA.

1.5 Product symbols

Symbols that appear on this product are shown below:

Functional earth (ground) terminal. Direct current supply only.		Electrical equ be disposed after 12 Augu and national European ele old or end-of
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.		disposal at ne ABB is comm environmenta products is m
This symbol identifies a risk of chemical harm and indicates that only individuals qualified and trained to work with chemicals should handle chemicals or perform maintenance on chemical delivery systems associated with the equipment.	1	IMPORTANT (I contact the ec instructions or proper dispose striction of Haz
This symbol indicates the need for protective eye wear.		The European regulations in countries limi
This symbol indicates the need for protective hand wear.	RoHS	used in the m equipment. C do not fall wit however ABE
Recycle separately from general waste under the WEEE directive.		recommenda future produc

1.6 Product recycling and disposal (Europe only)

ninal.		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.
a product, indicates a cause serious personal		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.
s instruction manual for mation.		
of chemical harm and qualified and trained to nandle chemicals or mical delivery systems	1	IMPORTANT (NOTE) For return for recycling, please contact the equipment manufacturer or supplier for instructions on how to return end-of-life equipment for proper disposal.
nt.	1.7 Re:	striction of Hazardous Substances (RoHS)
d for protective eye wear.		The European Union RoHS Directive and subsequent regulations introduced in member states and other countries limits the use of six hazardous substances
ed for protective hand	RoHS	used in the manufacturing of electrical and electronic equipment. Currently, monitoring and control monitors do not fall within the scope of the RoHS Directive, however ABB has taken the decision to adopt the
eral waste under the		recommendations in the Directive as the target for all future product design and component purchasing.

2 System overview

Aztec ADS430 EZCLEAN components are shown in Fig. 2.1:

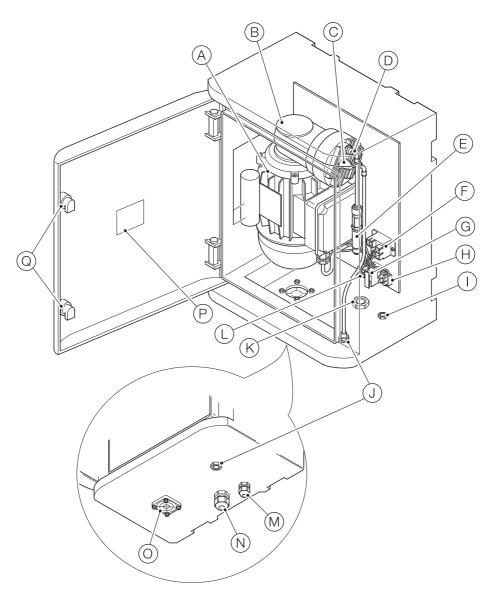


Fig. 2.1 Aztec ADS430EZCLEAN components

Item	Feature	Item	Feature
A	Compressor motor	U	Air out – bulkhead push-fit coupling (to 6 mm nylon tubing)
B	Compressor head	K	Cable gland entry (mains supply voltage cable)
\bigcirc	Air muffler / filter	L	Mains supply voltage connector
D	Air out - to compressed air adaptor or flowcell	M	M12 cable gland (digital I/O cable to transmitter)
E	Pressure relief valve	(N)	M20 cable gland (mains supply voltage)
F	Switching relay	\bigcirc	Air intake (including dust filter)
G	Fuse (2 A anti-surge)	P	Instrument label
(H)	Low voltage digital I/O connector	Q	Door locks
	Cable gland entry (low voltage digital I/O)		

Table 2.1 Aztec ADS430EZCLEAN – component descriptions

3 Installation

WARNING - Bodily injury

Unit weight 10.3 kg (22.6 lbs.). Mount in accordance with relevant safety requirements using suitable equipment and personnel.

3.1 Wall-mounting

This procedure is for wall-mounting using the 4 x plastic wall-mounting lugs and M6 screws / washers (supplied). The lugs can be attached to the unit in the vertical or horizontal plane. When choosing the mounting location, leave sufficient space in front of the unit to open the door fully (280 mm [11.0 in.]).

Dimensions in mm (in.)

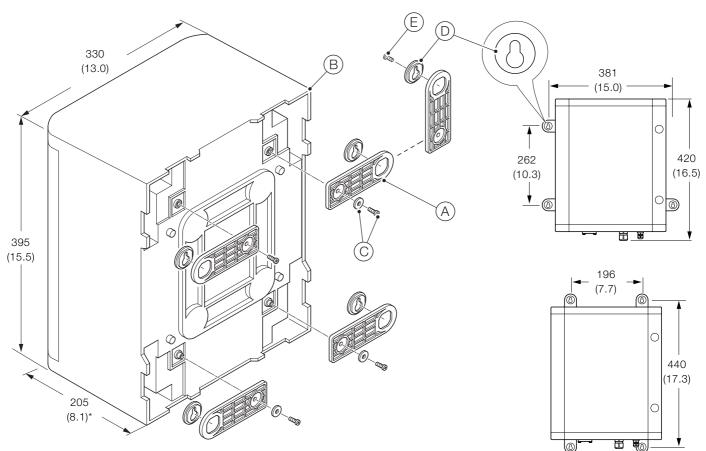
Referring to Fig. 3.1:

- Fit the 4 x mounting lugs (A) to the compressor unit (B) in the required plane and secure using the M6 screws / washers (C).
- Mark appropriate mounting lug screw hole locations on the wall and drill suitably-sized holes to accommodate the mounting location disks (D) and fixings (E) (not supplied).

IMPORTANT (NOTE)

Ensure the keyhole slots in location disks (D) are aligned correctly.

3. Mount the compressor unit to the wall.



*Add 280 (11.0) when door open

Fig. 3.1 Wall-mounting

3.2 Handrail / Wall-mounting

This procedure is for handrail / wall-mounting using the optional compressor unit handrail-mounting kit (part no. ADS430195). When choosing the mounting location, leave sufficient space in front of the enclosure to open the door fully (>485 mm [>19.1 in.]) .

NOTICE

Optional compressor mounting extension plates ((D) in Fig. 3.2 [2 supplied with handrail mounting kit part no. ADS430195]) can be attached to handrail mounting plates if required.

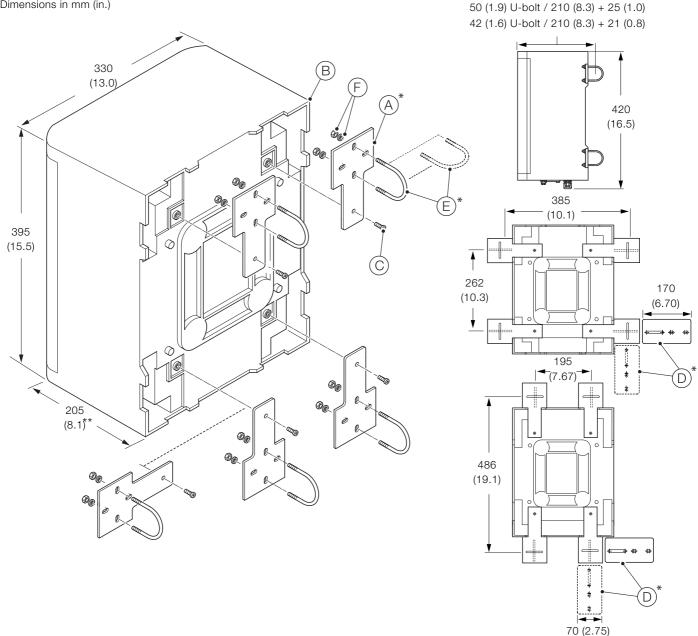
Dimensions in mm (in.)

Referring to Fig. 3.2:

1. Fit the 4 x handrail mounting plates (A) to the compressor unit (B) in the required plane and secure each plate with one M6 screw (C) (supplied).

If optional extension mounting plates (D) are required, attach to the handrail mounting plate(s) in the required plane using 2 x M6 bolts / washers / nuts (supplied) per plate.

2. Position the compressor unit (B) on the handrail and secure using the U-bolts (E) and M8 nuts / washers (F) (supplied).



*Mounting plates (A), U-bolts (E) and extension plates (D) can be fitted horizontally or vertically in each corner of the enclosure. Arrangements above shown for example only.

**485 (19.1) with door open

3.3 Pole-mounting

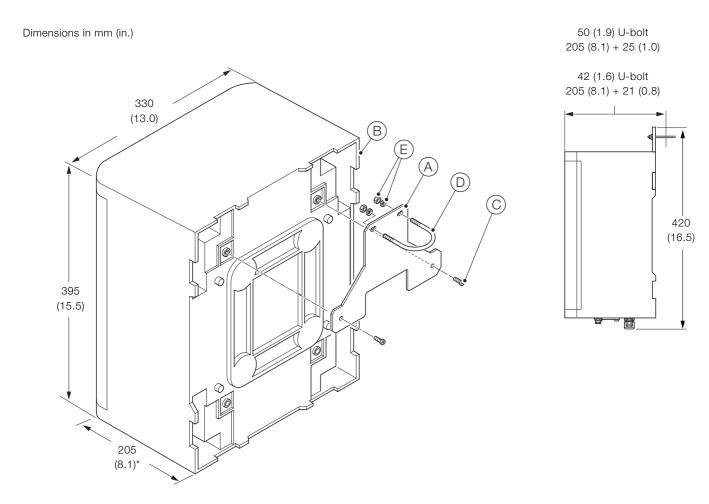
This procedure is for pole-mounting using the optional pole-mounting kit (part no. ADS430197). When choosing the mounting location, leave sufficient space in front of the unit to open the door fully (280 mm [11.0 in.]).

Referring to Fig. 3.3:

- 1. Fit the pole mounting plate (A) to the compressor unit (B) and secure using the M6 screws (C) (supplied).
- 2. Position the compressor unit (B) on the pole and secure using the U-bolt (D) and M8 nuts / washers (E) (supplied).

IMPORTANT (NOTE)

It is not usually necessary to fit a second pole mounting plate (and U-bolt) to the bottom of the enclosure but, if necessary, an additional kit (ADS430197) is required.



*Add 280 (11.0) when door open

Fig. 3.3 Pole-mounting

4 Connections

4.1 Pneumatic connections

WARNING - Bodily injury

The Aztec ADS430 EZCLEAN system develops compressed air up to a pressure of 50.7 psi(g) / 3.5 bar(g) maximum (when outlet blocked [zero flow]).

- do not use compressed air for any other purpose
- than that for which it is provided - never direct a stream of compressed air towards
- your body or the body of any other person
- when handling / connecting compressed air lines:
 - the correct safety procedures must be observed
 - suitable PPE must be worn (goggles / gloves / overalls)

4.1.1 Tubing to compressed air unit

Referring to Fig. 4.1:

 Connect one end of the 6 mm OD nylon tubing (A) to bulkhead push-fit connector (B).

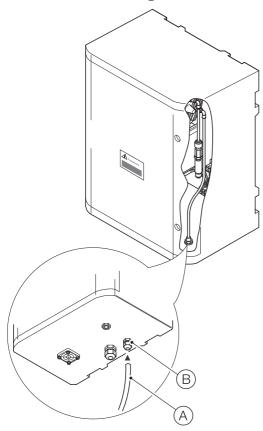


Fig. 4.1 Connecting 6 mm OD nylon tubing to the compressed air unit

- 2. Proceed to:
 - Section 4.1.2 to connect 6 mm OD nylon tubing to ABB compressed air adaptor (ADS430170)
 - Section 4.1.3 to connect 6 mm nylon OD tubing to ABB flowcell (ADS430160)

4.1.2 Tubing to ABB compressed air adaptor (ADS430170)

 Refer to INF14/158-EN to fit the compressed air adaptor to the probe.

Referring to Fig. 4.2:

 Connect the free end of 6 mm OD nylon tubing (A) to G3/8 connector (B) on the compressed air adaptor (C):

WARNING – Bodily injury

Typical pressure and flowrate 20 psi(g) / 1.38 bar(g) @0.5 scfm (14.16 L/min), set to perform every 4 hours.

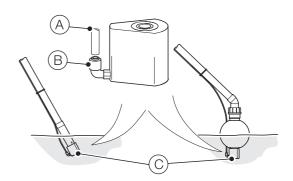


Fig. 4.2 Connecting 6 mm OD nylon tubing to the ABB compressed air adaptor

3. Proceed to Section 4.2, page 10 to make electrical connections.

4.1.3 Tubing to ABB flowcell (ADS430160)

1. Refer to INF/157-EN to fit the probe into the ABB flowcell.

Referring to Fig. 4.3:

2. Connect the free end of 6 mm OD nylon tubing (A) to G3/8 connector (B) on the ABB flowcell (C):

WARNING – Bodily injury

Typical pressure and flowrate 20 psi(g) / 1.38 bar(g) @0.5 scfm (14.16 L/min), set to perform every 4 hours.

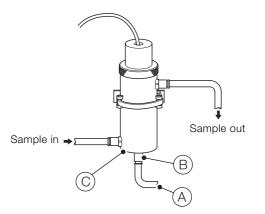


Fig. 4.3 Connecting 6 mm OD nylon tubing to the ABB flowcell – typical arrangement

3. Proceed to Section 4.2, page 10 to make electrical connections.

4.2 Electrical connections

4.2.1 24 V DC supply (compressor unit to Aztec AWT440 transmitter)

WARNING – Bodily injury



 Isolate the compressed air unit and Aztec AWT440 transmitter from the mains power supply before making electrical connections.

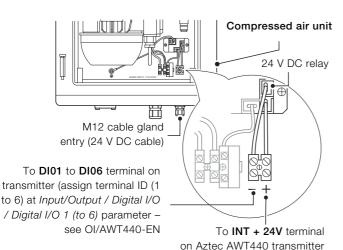
 Ensure all cable runs are safe and do not present a trip hazard when routing / securing.

Referring to Fig. 2.1, page 5:

1. Release the 2 door locks (Q) and open the compressed air unit door.

Referring to Fig. 4.4:

- Loosen the M12 cable gland entry on the base of the compressed air unit and pass one end of the sheathed twin-core connection cable through. Pass the other end of the cable through the required cable gland entry on the transmitter refer to the transmitter Operating instruction (OI/AWT440-EN) for gland entry options.
- 3. Make connections between the compressed air unit and transmitter.
- 4. Tighten low voltage cable glands on compressed air unit and transmitter.
- 5. Proceed to Section 4.2.2 to make the mains voltage supply connection to the compressed air unit.



 Aztec AWT40 transmitter

 Image: Comparison of the second second

- WARNING Bodily injury
 Isolate the compressed air unit and Aztec AWT440 transmitter from the mains power supply before making electrical connections.
- Ensure the voltage supply matches the supply voltage specified on the instrument label (P) fitted within the enclosure before making connections see Fig. 2.1, page 5.
- Ensure all cable runs are safe and do not present a trip hazard when routing / securing.

Referring to Fig. 4.5:

- Loosen the M20 cable gland entry on the base of the compressed air unit and pass the free end of the 3-core mains supply cable through.
- 2. Make mains power supply connections to the compressed air unit Neutral / Earth / Live terminals.
- 3. Tighten the M20 mains supply voltage cable gland.
- Close and lock the compressed air unit door refer to Fig. 2.1, page 5.
- 5. Proceed to Section 5, page 11 to configure the cleaning schedule.

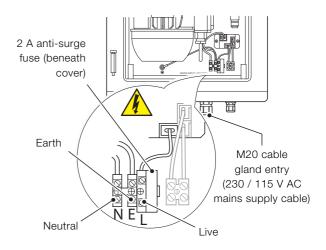


Fig. 4.5 Mains supply voltage 230 or 115 V AC connections

Fig. 4.4 24 V DC connections – compressed air unit to Aztec AWT440 transmitter

OLADSADO/EZOLNI EN DOU DIANTO ADSADO EZOLEANI LO

4.2.2 Mains voltage supply (230 or 115 V AC)

5 Configuration

NOTE

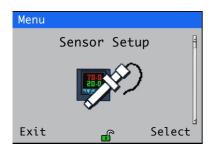
- Schedule automatic cleans for configured probe(s) only.
- Clean parameters are enabled only when the Clean Interval is set (is not Off) see Section 5.1, page 12.
- Full software details are detailed in the transmitter Operating instruction (OI/AWT440-EN).
- 1. Ensure the Aztec ADS430 probe to be cleaned is connected to the transmitter.
- Ensure pneumatic connections are made between the Aztec ADS430 EZCLEAN compressed air unit and either an ABB flowcell mounting assembly (part no. ADS430160) or an ABB compressed air adaptor (part no. ADS430170 / 171) to be fitted on the probe.
- Ensure electrical connections are made between the Aztec ADS430 EZCLEAN compressed air unit and the Aztec AWT440 transmitter – see Section 4.2, page 10.

Use the \bigcirc key to select the *Advanced* menu item and press the \checkmark key (below the *Select* prompt) to access *Advanced* level menus.

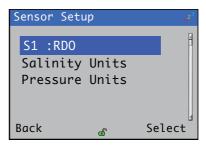
Use the \frown / \bigcirc keys to scroll to the *Input/Output* menu and press the \checkmark key to enter the level. Scroll to the *Digital I/O* / *Digital I/O* 1 (to 6) menu using the \frown / \bigcirc keys.

Configure digital output parameters for the associated probe as follows:

- Set: Type to Output
- Set: Source to Sx Clean (where x corresponds to the sensor position [1 to 4] at the EZLink connector)
- Set: Polarity to Inverted
- 5. Exit the *Input/Output* menu and use the 1 v keys to scroll to the *Sensor Setup* menu:



Press the 📝 key – the Sensor Setup page is displayed:



If more than 1 sensor is connected, select the required sensor *S1(to 4) :RDO* (to be cleaned) and press the *key* (below the *Select* prompt).

The sensor *S1(to 4) :RDO* menu page is displayed – see Section 5.1, page 12:

S1(to 4) :RDO	1 ^{2³}
Тад	
PV Type Units	
Range High	
Range Low	
Filter Type Back 💣	Select

7. Scroll to the *Clean Interval* menu and set the required interval between cleans.

S1(to 4) :RDO	1 ^{2³}
Clean Interval	8
Clean Type	
Clean On Time	
Clean Off Time	
Number of Pulses	
Recovery Time	
Back 🔐	Select

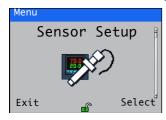
 Set the required clean parameters (Clean Type / Clean On Time / Clean Off Time* / Number of Pulses* / Recovery Time / Clean Duration / Clean Output) for the connected probe.

*Enabled only if Clean Type is set to Pulsed.

9. When all required clean parameters are set, press the key repeatedly to exit the *Sensor Setup* level and return to the *Operator Page*.

The configured clean commences at the interval set after this configuration is saved and repeats until re-configured or stopped.

5.1 Sensor Setup



Used to set the tag, measurement units, operational range and clean functions and to compensate for salinity and barometric pressure.

Menu	Comment	Default
S1 (to 4) :RDO	Select the ID of the optical dissolved oxygen probe to be cleaned and scroll to the <i>Clean Interval</i> menu to configure the cleaning routine.	ł
Tag PV Type Units Range High Range Low Filter Type	These parameters are not used to configure cleaning – refer to the Aztec ADS430 probe Operating instruction (OI/ADS430-EN) for parameter descriptions.	
Clean Interval	Set the interval between cleans: Off / 15 Mins. / 30 Mins. / 45 Mins. / 1 to 24 Hours	Off
Clean Type*	Set the clean type: Continuous / Pulsed	Continuous
Clean On Time*	Set the duration of the clean: 1 to 60 Secs	30 Secs
Clean Off Time*/**	Set the duration between cleans: 1 to 60 Secs	30 Secs
Number of Pulses*/**	Set the number of cleaning pulses: 1 to 10 Pulses	2 Pulses
Recovery Time*	Set the time delay between the completion of cleaning and the display of a new reading on the operator page: <i>1 to 10 Min.</i>	1 Min.
Clean Duration*	Displays the total duration of the clean: Clean Type set to <i>Continuous</i> = Clean on Time + Recovery Time	
	Clean Type set to <i>Pulsed</i> = (Clean on Time + Clean Off Time) × Number of Pulses + Recovery Time	
Clean Output*	Displays the output signal the clean is assigned to. This can be set to relay 1 to 6 or digital output 1 to 6 – refer to Aztec AWT440 transmitter Operating instruction (OI/AWT440-EN).	No Assignment
Salinity Correction Barometric Pressure Restore Defaults	These parameters are not used to configure cleaning – refer to the Aztec ADS430 probe Operating instruction (OI/ADS430-EN) for parameter descriptions.	
Salinity Units		
Pressure Units		

* Displayed only if Clean Interval is $\ensuremath{\text{NOT}}$ set to $\ensuremath{\textit{Off}}$

** Displayed only if Clean Type is set to Pulsed

6 Maintenance

6.1 Annual maintenance

- 1. Ensure compressed air supply unit mountings are secure.
- 2. Ensure push-fit couplings and 6 mm tubing are in serviceable condition see Section 4.1, page 9.
- 3. Ensure the air intake is clean see Section 2, page 5, item (0).
- 4. Ensure the air muffler / filter is clean and free of clogged pores see Section 2, page 5, item ^(C). To clean this, remove from the compressor head and blow oil-free compressed air through it from the reverse side. If the unit operates in a dusty environment, additional periodic cleaning may be required use only a clean, dry cloth.

7 Spares and Accessories

7.1 Spares

7.1.1 Compressor mounting kits

Part number	Description
ADS430053	Wall-mounting kit, comprising: – M6 screws and washers x 4 – compressor unit enclosure mounting plates x 4
ADS430054	Handrail-mounting kit, comprising: – U-bolt x 4 with washer and nut – M6 screws and washers x 4 ea. – compressor unit enclosure mounting plates x 4
ADS430055	Pole-mounting kit, comprising: – U-bolts x 4 – M6 screws and washers x 4 – compressor unit enclosure mounting plate

Table 7.1 Aztec ADS430 EZCLEAN compressor mounting kits

7.1.2 Compressor maintenance kit

Part number	Description
ADS430056	Maintenance kit, comprising: – 15 m (45 ft.) x 6 mm OD nylon tubing – G3/8 push-fit connector – replacement air muffler / filter – fuse

Table 7.2 Aztec ADS430 EZCLEAN compressor maintenance kit – ADS430056

7.1.3 Tubing / tubing kit

Part number	Description
ADS430175	15 m (45 ft.) x 6 mm OD nylon tubing

Table 7.3 6 mm OD nylon tubing – ADS430175

Part number	Description
ADS430169	Tubing and connector comprising: – 15 m (45 ft.) x 6 mm OD nylon tubing – G3/8 push-fit connector

Table 7.4 Air cleaning tubing kit - ADS430169

7.1.4 Compressor assembly

Part number	Description
ADS430052	Replacement compressor assembly (compressor only) Note . Voltage (230 or 115 V AC) must be configured by end-user. Refer to instructions supplied with compressor.

Table 7.5 Aztec ADS430 EZCLEAN compressor assembly – ADS430052

7.1.5 Compressor pneumatic fittings kit

Part number	Description
ADS430056	Compressor pneumatic fittings kit

Table 7.6 Aztec ADS430 EZCLEAN compressor pneumatic fittings kit – ADS430056

7.2 Accessories

7.2.1 Pole-mounting kit

Part number	Description
ADS430197	Compressor pole-mounting kit

Table 7.7 Aztec ADS430 EZCLEAN compressor pole-mounting kit – ADS430197

7.2.2 Handrail-mounting kit

Part number	Description
	Compressor handrail-mounting kit, includes 4 x handrail / wall mounting plates, 2 x extension plates, U bolts, nuts and washers

Table 7.8 Aztec ADS430 EZCLEAN compressor handrail-mounting kit – ADS430195

7.2.3 Compressor unit

Part number	Description
	EZCLEAN compressor unit, including housing:
ADS430050	– 230 V AC
ADS430051	– 115 V AC

Table 7.9 Aztec ADS430 EZCLEAN compressor unit - 230 and 115 V AC

8 Specification

Compressed air unit

Dimensions*

Height: 395 mm (15.5 in.)

Width: 330 mm (13.0 in.)

Depth: 205 mm (8.1 in.)

Enclosure material Polypropylene

Pump unit

Power

90 W

Pressure relief valve

Set to vent to atmosphere if pressure exceeds 20 psi(g) / 1.38 bar(g)

Pneumatic pressure / flow rate

Maximum pressure:

- outlet closed: 50.7 psi(g) / 3.5 bar(g)
- outlet open: 30 psi(g) / 2.0 bar(g)

Typical operating pressure and flowrate 20 psi(g) / 1.38 bar(g) @0.5 scfm (14.16 L/min), set to perform every 4 hours

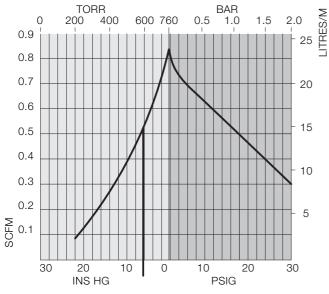


Fig. 8.1 Pump unit - pneumatic pressure / flow rate

Environmental ratings

Storage temperature -20 to 50 °C (-4 to 122 °F) Operating temperature -20 to 50 °C (-4 to 122 °F)

Power requirements

Mains power supply 230 or 115 V AC, 90 W

Internal fuse 2 A, anti-surge Digital I/O** 24 V DC

Cable entries

Mains voltage supply cable M20 cable gland Digial I/O cable** M12 cable gland

Pneumatic entry

Bulkhead push-fit connector for 6 mm nylon tubing

Compliance

CE

*Excluding mounting brackets, see Section 3, page 6 for bracket dimensions **From digital I/O in transmitter or an external supply via the transmitter relay

Acknowledgements

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ABB Limited

Measurement & Analytics

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Measurement & Analytics

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