

100 GP/100 ULTRA/500 PRO series

¾ in pH/Redox (ORP) sensors



Cleaning kit

Measurement made easy

Introduction

This publication details part numbers and installation procedures for the cleaning kit for use with 100 GP, 100 ULTRA and 500 PRO series ¾ in pH/Redox (ORP) sensors.

WARNING

Potential high pressure/high temperature

- These procedures must be carried out by suitably trained personnel and in accordance with the information given.

For more information

Publications for the associated sensors and transmitters are available for free download from: www.abb.com/measurement

or by scanning this code:



Search for or click on:

Operating instruction 100 GP/100 ULTRA/ 500 PRO pH/Redox (ORP) sensors	OI/100/500-EN
Operating instruction AWT440 multi-input transmitter	OI/AWT440-EN
Operating instruction AWT420 universal 4-wire single- and dual-input transmitter	OI/AWT420-EN
Data sheet AWT440 multi-input transmitter	DS/AWT440-EN
Data sheet AWT420 universal 4-wire single- and dual-input transmitter	DS/AWT420-EN

1 Safety

Potential safety hazards

The sensor operates with a maximum of 3.3 V DC. There are no hazardous voltages present in the sensor.

⚠ WARNING

Potential high pressure/high temperature

- These procedures must be carried out by suitably trained personnel and in accordance with any local regulations and practices.

2 Specification

Material

- 60L chemical tank
 - Polyethylene (PE)
- Cleaning adaptor and blanking nut
 - 316 stainless steel
- Solenoid metering pump
 - See operating instructions for dosing pump

Operating process pressure

- Maximum: 6.9 bar (100 psi)

Operating process temperature

- Maximum: -20 to 60 °C (-4 to 140 °F)

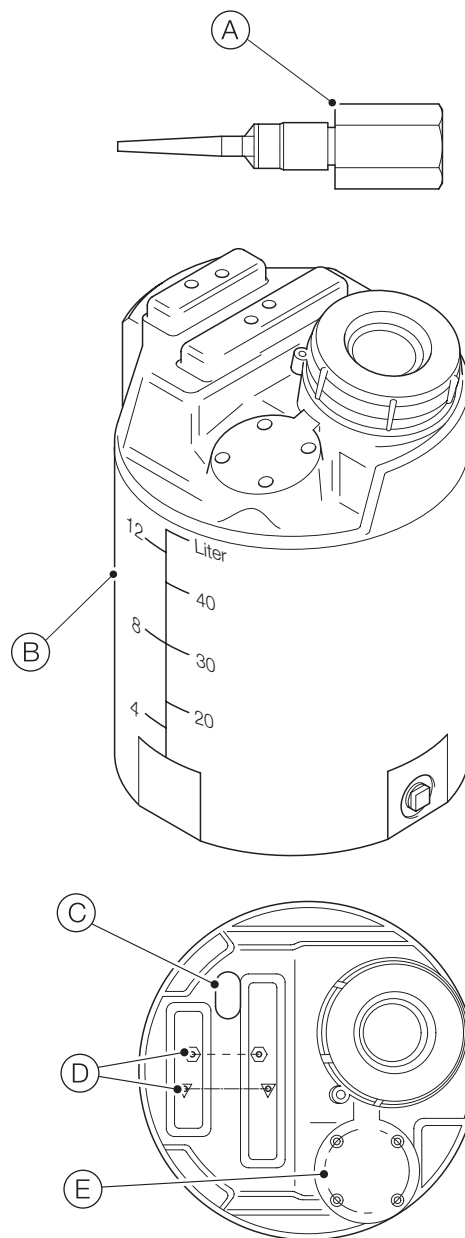
3 Spares and accessories

Description	Part number	Qty
pH sensor cleaning adaptor	3KXA163000L0026	1
pH sensor cleaning kit	3KXA163000L0025	1
This publication - 100 GP/100 ULTRA/500 PRO ¾ in pH/Redox (ORP) sensors	IN/ANAINST/042-EN	1

Table 1 Spares and accessories for 100 GP/100 ULTRA/500 PRO series sensors

4 Overview

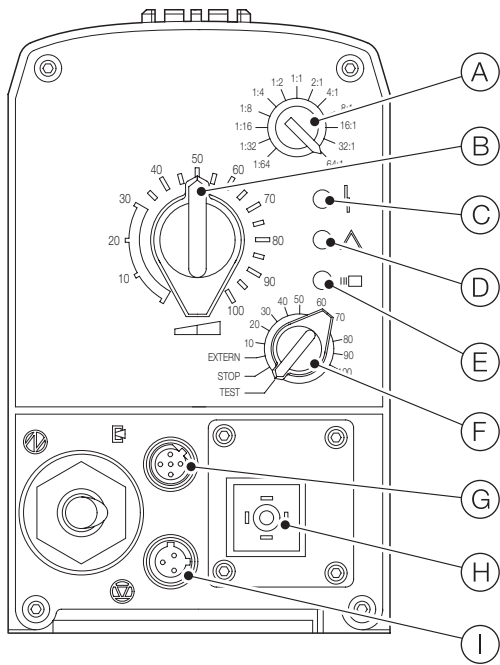
Jet wash adaptor and container



- (A) Jet wash cleaning adaptor
- (B) Cleaning kit/container
- (C) Suction assembly entry
- (D) Pump mounting holes
- (E) Mounting for customer-supplied assembly

Figure 1 Jet wash adaptor and container main components

Dosing pump



- (A) Pulse control switch
- (B) Stroke length adjustment button
- (C) Fault indicator (red)
- (D) Warning indicator (yellow)
- (E) Operating indicator (green)
- (F) Multifunction switch
- (G) External control terminal
- (H) Relay connection (optional)
- (I) Level switch

Figure 2 Dosing pump main components

5 Dimensions

Dimensions in mm (in).

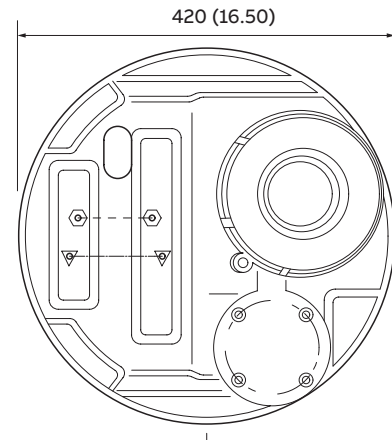
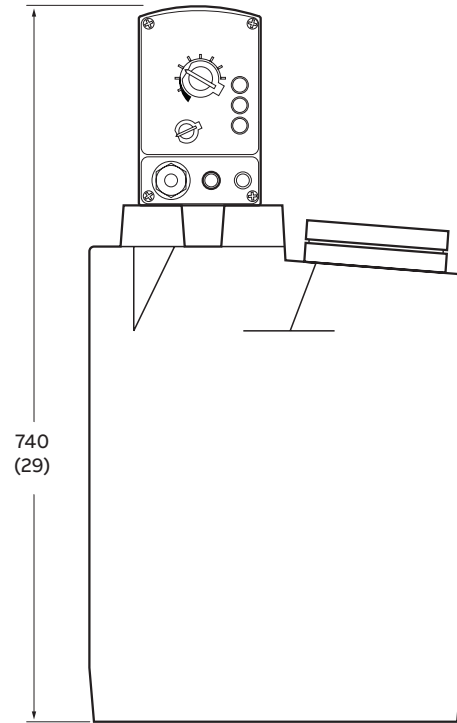
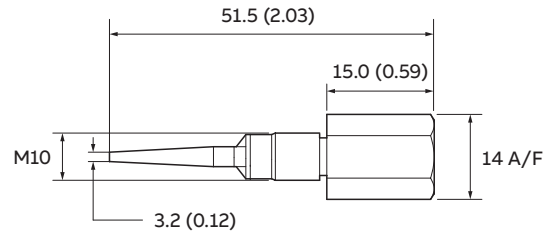


Figure 3 Cleaning kit dimensions

6 Installation

Jet wash system

⚠ WARNING

Potential high pressure/high temperature

- Before proceeding with any installation procedure, reduce process pressure to zero, isolate the process (input/output) supplies and ensure the local components are cool enough to handle.

NOTICE

Jet wash system installation must be performed in accordance with local water company and council bylaws.

The jet wash system enables automatic cleaning of both the measuring element and the reference junction by spraying either water or a cleaning solution at them in situ, thus reducing system maintenance requirements. An external pump is provided as part of the cleaning kit.

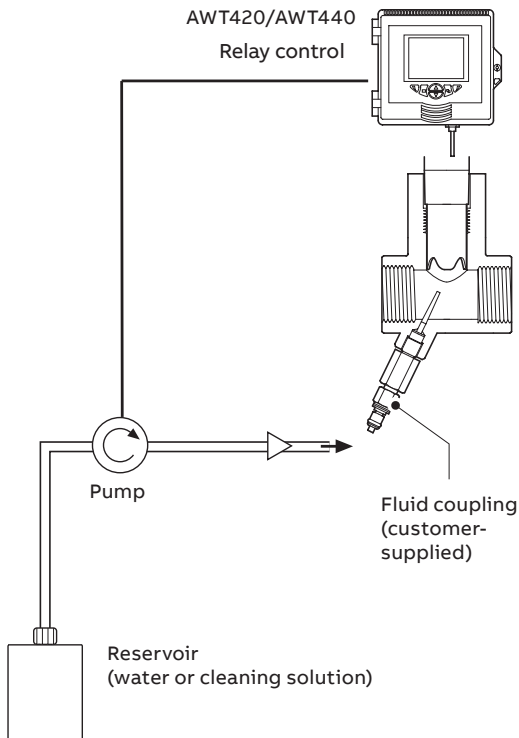


Figure 4 Jet wash system

Cleaning solutions

Some typical cleaning solutions are:

Coating	Cleaning Agent
Grease and oils	Alkaline detergents or water-soluble solvents such as alcohols
Resins	Dilute alkalis
Limestone/Carbonates	
Metal hydroxides	Dilute acid
Cyanides	
Heavy biological	
Proteins	Mixture of 1M sulphuric acid and pepsin (saturated)
Fibers	Pressurized water with or without wetting agents
Light biological	Pressurized water
Latex (see NOTICE below)	Pressurized cold water

NOTICE

If the jet wash system is removed from a latex process, all traces of latex must be removed quickly and completely before it hardens.

Pump installation

Installing the dosing pump

Refer to the dosing pump operating instructions for detailed pump installation instructions.

Install using the following procedure:

- 1 Attach a tube from suction assembly to inlet of solenoid pump.

Note. The suction assembly has a variable length which can be adjusted to match the size of the tank.

- 2 Attach a tube (customer supplied) from solenoid pump to T-piece assembly – refer to Instruction [IN/ANAINST/035-EN](#) for details of how to connect to the T-piece assembly.
- 3 Fill tank with cleaning solution – refer to the dosing pump operating instructions for further information.

Dosing pump electrical installation

The pump can be controlled by the relay control in the ABB AWT420 or AWT440 transmitters – refer to AWT420 Operating instruction ([OI/AWT420-EN](#)) or AWT440 Operating instruction ([OI/AWT440-EN](#)) for electrical connections.

To connect the pump to the transmitter:

- 1 Connect the level switch cable from the suction assembly to the level switch input.
- 2 Connect the external control cable to the external control input.
- 3 Connect the black wire on the external control cable to a relay input common pin in the transmitter.
- 4 Connect the brown wire on the external control cable to a relay input NO pin in the transmitter.
- 5 Set the stroke length adjustment button to apply the necessary amount of dosing per pump – recommended range 30 to 100 %.
- 6 Set the multifunction switch to the necessary stroke rate – recommended range 30 to 100 %
- 7 Apply power to the pump.

Jet wash cleaning adaptor

WARNING

Potential high pressure/high temperature

- Before performing this procedure, ensure the process line is empty to avoid spillage when removing blanking nut..

Referring to Figure 5:

- 1 Unscrew blanking nut (A) from base of jet wash cleaning adaptor entry (B).
- 2 Insert jet wash cleaning adaptor (C) into adaptor entry (B) and tighten using a 14 mm A/F open-ended spanner until secure.

Do not overtighten.

- 3 Prepare the sensor for operation – refer to Operating Instruction [OI/100/500-EN](#).

Note. Cleaning frequency can be set at the associated transmitter – refer to the cover page for details/references for transmitter types.

- 4 Commission the process, ensuring the T-piece/sensor assembly is free from leaks.

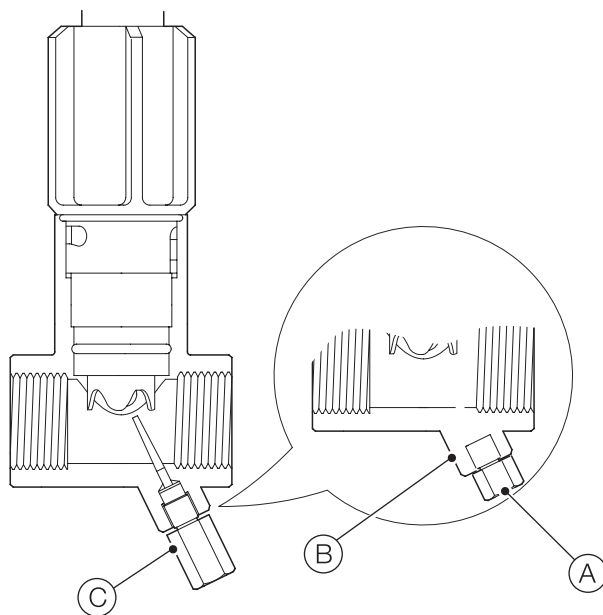










Figure 5 Jet wash cleaning adaptor

7 Operation

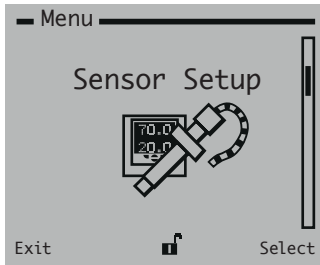
To control the cleaning unit from the transmitter:

- 1 Ensure the system is installed as detailed on pages 4 and 5 and refer to Sensor Setup (page 7) for setup menu options (see steps below).
- 2 With a sensor attached, power up the AWT440/AWT420 transmitter.
- 3 At the AWT440/AWT420 transmitter, navigate to the **Operator Page** then select **Enter Configuration** to display the **Access Level**. Use the   keys to select the **Advanced** menu and press the  key (below the **Select** prompt) to access **Advanced Level** menus.
- 4 Use the   keys to scroll to the **Input/Output** menu and press the  key to access the level. Scroll to **Relays** and press the enter  key. Set the source to **Sx Clean** (where x corresponds to the sensor to be cleaned) and set the polarity to **Non-inverted**.
- 5 Exit the **Input/Output** menu and navigate to **Sensor Setup**.
- 6 Select the correct sensor.
- 7 Scroll to **Clean Interval** and select the required cleaning interval.
- 8 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.
- 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.

*See Sensor Setup, page 7 for menu states.

Sensor Setup



Note. Sensor Setup menus are sensor-specific – the menus in this section are applicable to transmitters connected to pH sensor types.

Menu	Comment	Default
S1 (to 4): PH		
Tag PV Type Range High Range Low Filter Type	These menu options not applicable to this procedure.	N/A
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: 1 to 10 Min.	1 Min.
Clean Duration *	Displays the total duration of the clean: Clean Type set to Continuous = Clean on Time + Recovery Time Clean Type set to Pulsed = (Clean on Time + Clean Off Time) x 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 AWT420 Operating instruction (OI/AWT420-EN) or AWT440 Operating instruction (OI/AWT440-EN).	No Assignment
Salinity Correction Barometric Pressure Restore Defaults	These menu options not applicable to this procedure.	N/A
PV Slope		
PV Slope		

* Displayed only if Clean Interval is NOT set to Off

** Displayed only if Clean Type is set to Pulsed

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