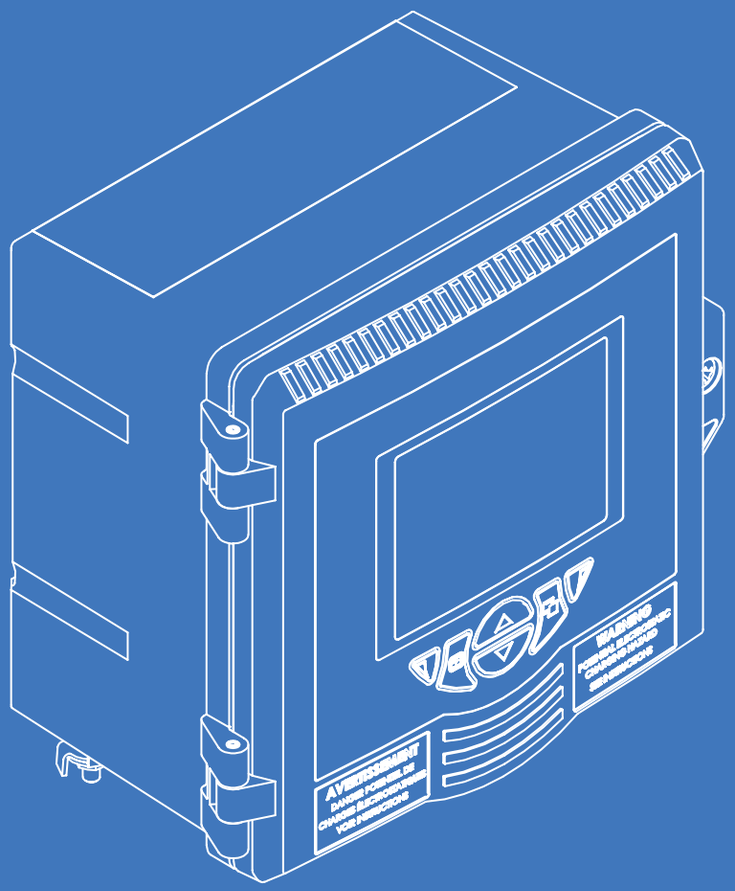
AWT420

Universal 4-Wire, Dual-Input Transmitter

User & Installation Manual



NETAFIM™

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FOREIGN LANGUAGES

In the event that you are reading this manual in a language other than the English language, you acknowledge and agree that the English language version shall prevail in case of inconsistency or contradiction in interpretation or translation.

CONTENTS

INTRODUCTION

Netafim™ congratulates you on purchasing the AWT420 transmitter.

The AWT420 is a universal 4-wire, dual-input transmitter suitable for the measurement and control of a wide range of parameters including pH, ORP, conductivity, turbidity/suspended solids and dissolved oxygen.

→ ABOUT THIS DOCUMENT

This manual is a concise version intended for the specific use of the AWT420 transmitter relevant to use with Netafim™ Fertikit™ dosing system.

This manual provides installation, operation and maintenance procedures for the AWT420 transmitter.

Read the instructions carefully and act accordingly.

For information on the sensors, including installation, commissioning, operation and maintenance procedures, refer to the specific sensor manual.

CAUTION
Read the Safety instructions chapter before beginning installation.

Failure to follow the instructions in this manual may endanger the user/installer, irreversibly damage the product and void the warranty.

→ FURTHER INFORMATION

In any case you need additional support, contact your Netafim™ local representative.

- For the full Commissioning Instruction document enter the link:
  https://search.abb.com/library/Download.aspx?DocumentID=OI/AWT420-EN&LanguageCode=en&DocumentPartId=&Action=Launch%0D
- For troubleshooting see the operating instructions, page 84 at:
  Operating instruction - AWT420 | Universal 4-wire, dual-input transmitter (abb.com)
  For the operating instructions in languages other than the English language go to:
  https://library.abb.com/r?cid=9AAC174378&dk=operating%20instruction&lang=de,en,es,fr,it,pt,zh
  In case you did not troubleshoot the problem using the means above, contact Netafim™ support at:
  cmt.support@netafim.com
- Further publications for the AWT420 transmitter are available for free download from:
  www.abb.com/measurement
  or by scanning this code:

HEALTH & SAFETY

→ 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.

→ 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

→ POTENTIAL SAFETY HAZARDS

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 - electrical

To ensure safe use when operating this equipment, the following must be observed:

- Up to 240 V AC may be present. Be sure to isolate the supply before removing the terminal cover.

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

→ 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.

→ PRODUCT SYMBOLS

Symbols that may appear on this product are shown below:

Protective earth (ground) terminal.

Functional earth (ground) terminal.

Alternating current supply only.

Direct current supply only.

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.

The equipment is protected through double insulation.

Recycle separately from general waste under the WEEE directive.

→ PRODUCT RECYCLING AND DISPOSAL

Europe only

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. The European Waste Electrical and Electronic Equipment (WEEE) Directive that initially came into force on August 13 2005 aims to reduce the waste arising from electrical and electronic equipment; and improve the environmental performance of all those involved in the life cycle of electrical and electronic equipment.
In conformity with European local and national regulations, electrical equipment marked with the above symbol may not be disposed of in European public disposal systems after 12 August 2005.

NOTICE
For return for recycling, please contact the equipment manufacturer or supplier for instructions on how to return end-of-life equipment for proper disposal.

→ 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.

→ CLEANING

The complete transmitter can be hosed down if it has been installed to IP66/NEMA 4X standards, i.e. cable glands are correctly fitted and all unused cable entry holes are blanked off – see page 15.

Warm water and a mild detergent can be used.

DESCRIPTION

→ OVERVIEW

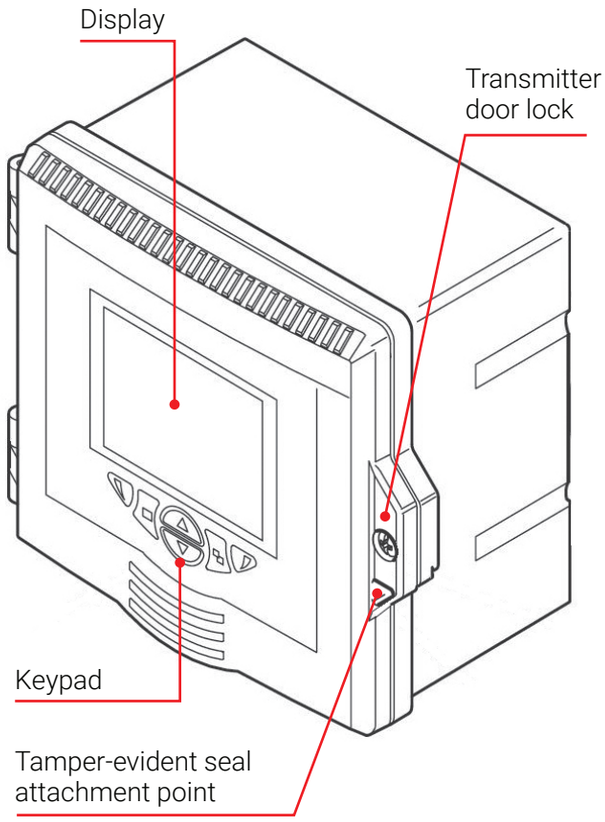
The AWT420 is a universal 4-wire single or dual-input transmitter suitable for the measurement and control of a wide range of parameters including pH, ORP, conductivity, turbidity/suspended solids and dissolved oxygen (depending on the module[s] fitted).

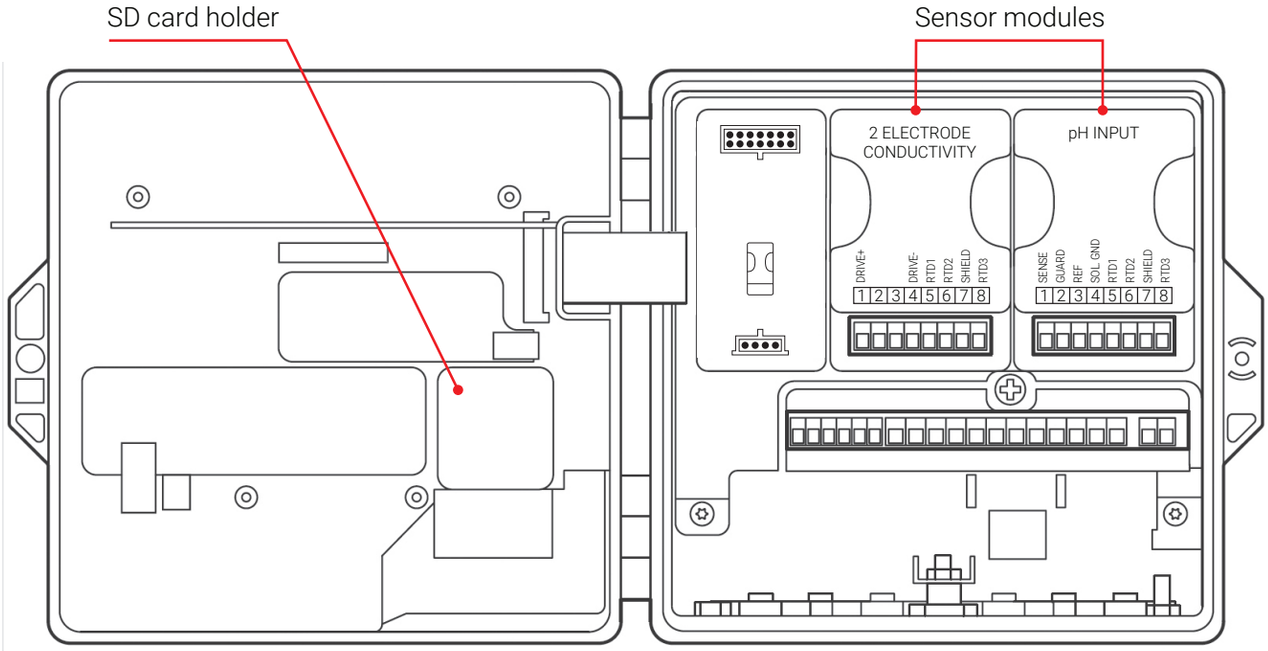
Sensor and communication modules plug directly into their corresponding slot on the transmitter backboard – see page 15 for module locations.

The AWT420 transmitter can be wall-, or panel-mounted (option: pipe mounted).

Information from the sensor is sent to the transmitter via a sensor interface board. The process reading is displayed on the main page and can be displayed as a graph in the Chart View. Diagnostic messages inform the user of the system status and can be logged for review. The system status can also be assessed remotely using optional HART®, MODBUS®, Profibus® or Ethernet communications.

Installation and commissioning is simplified with plug-and-play digital sensor connections and automatic sensor recognition and set-up.





→ CONFIGURATIONS

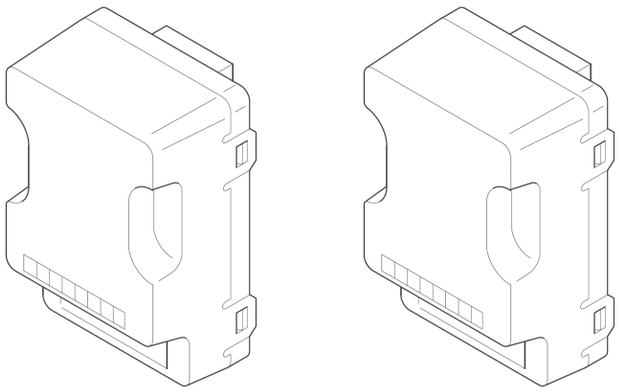
The AWT420 transmitter offered by Netafim™ for use with its dosing systems is factory pre-configurated for its specific use:

- EC and pH configuration is the common configuration of the AWT420 for use with Netafim™ dosing systems (FertiKit, NetaJet, NetaFlex, etc.).
- A double-EC configuration is optional for condition of water EC non-uniformity. (contact your Netafim™ local representative).

→ MODULES

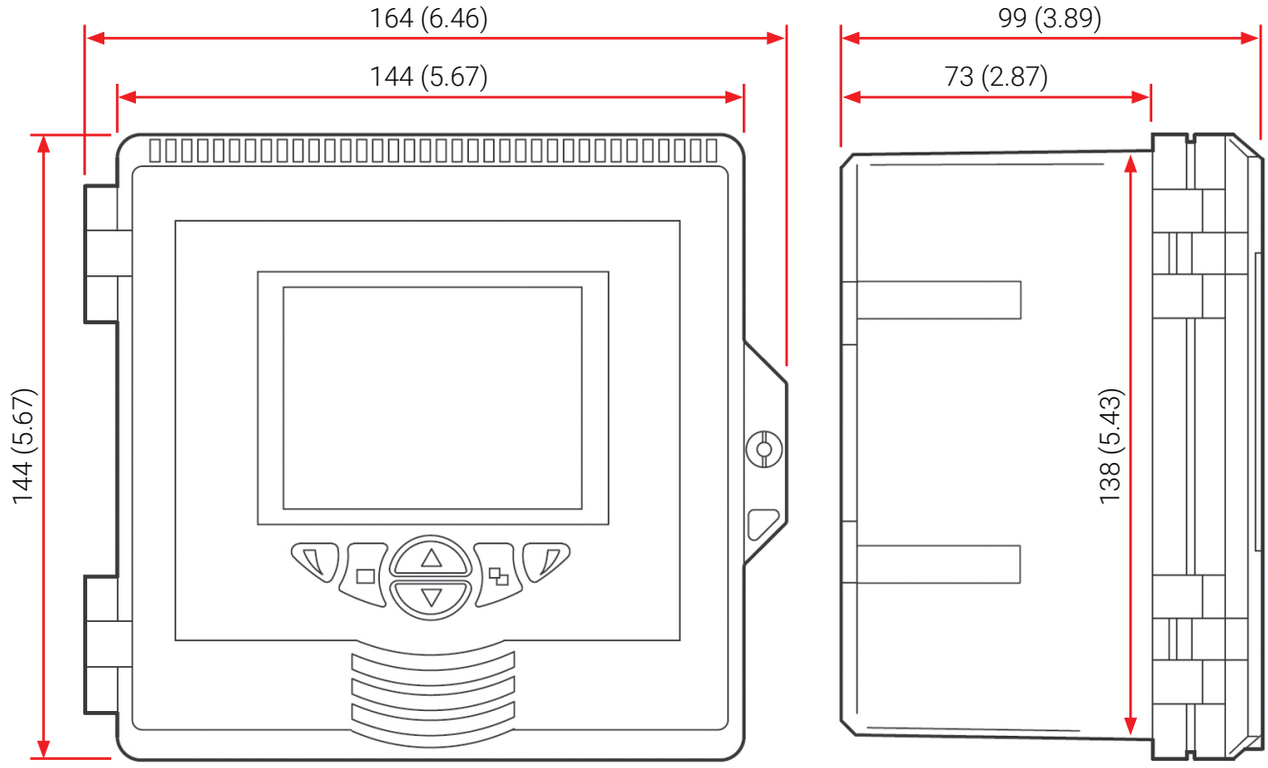
2 modules are supplied with the pre-configurated AWT420 transmitter, to be fitted to the transmitter baseboard by the customer.

- EC sensor module - for middle post.
- pH sensor module - for right post.



→ DIMENSIONS

Dimensions in mm (in)

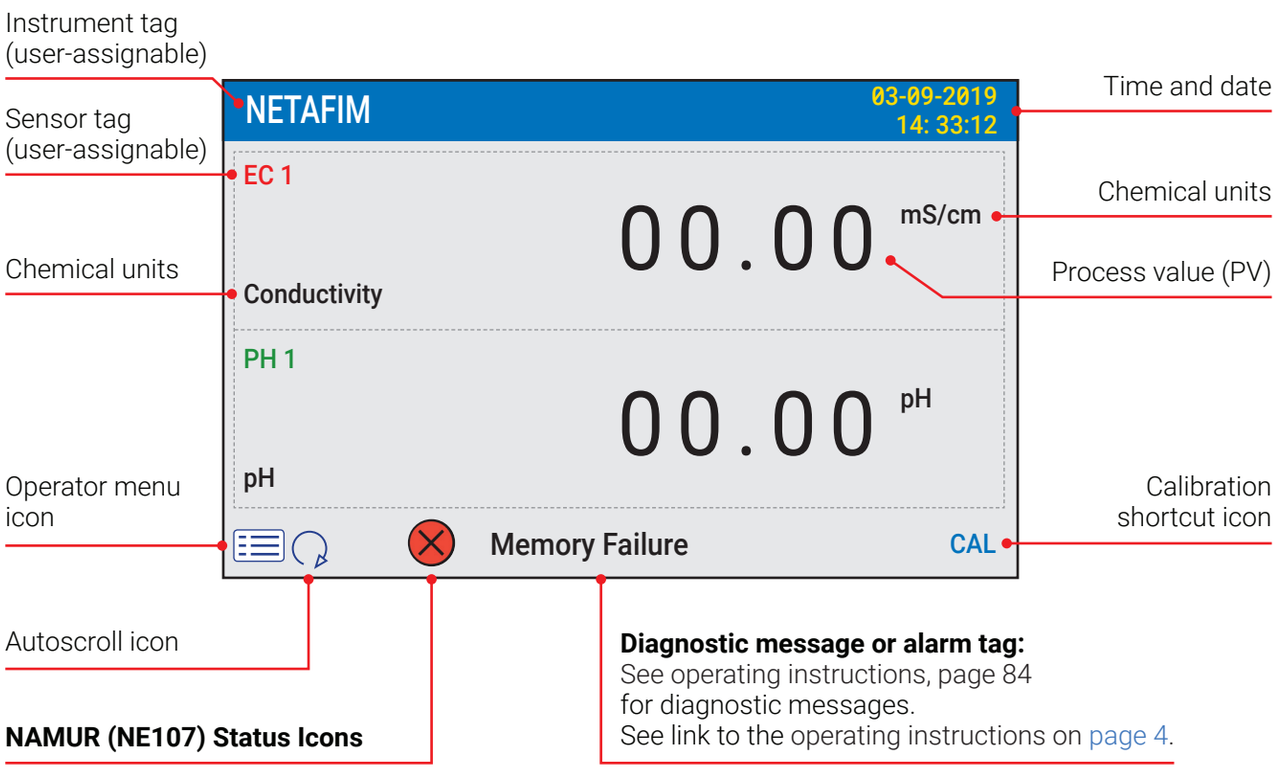


BASIC OPERATION

This chapter describes basic operation of the AWT420 transmitter.
(For in-depth operation instructions see Further information on page 4).

→ DISPLAY

Operating mode

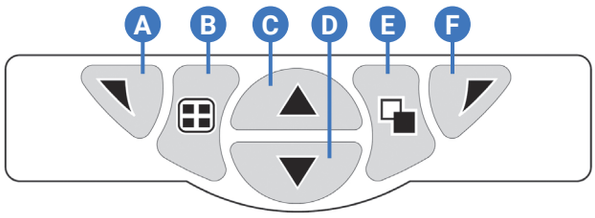


NOTE
Always pay attention to the status icon and the Diagnostic message / alarm tag.

Failure	High Process Alarm
Maintenance	Low Process Alarm
Out of Spec	High Latch Alarm
Check Function	Low Latch Alarm

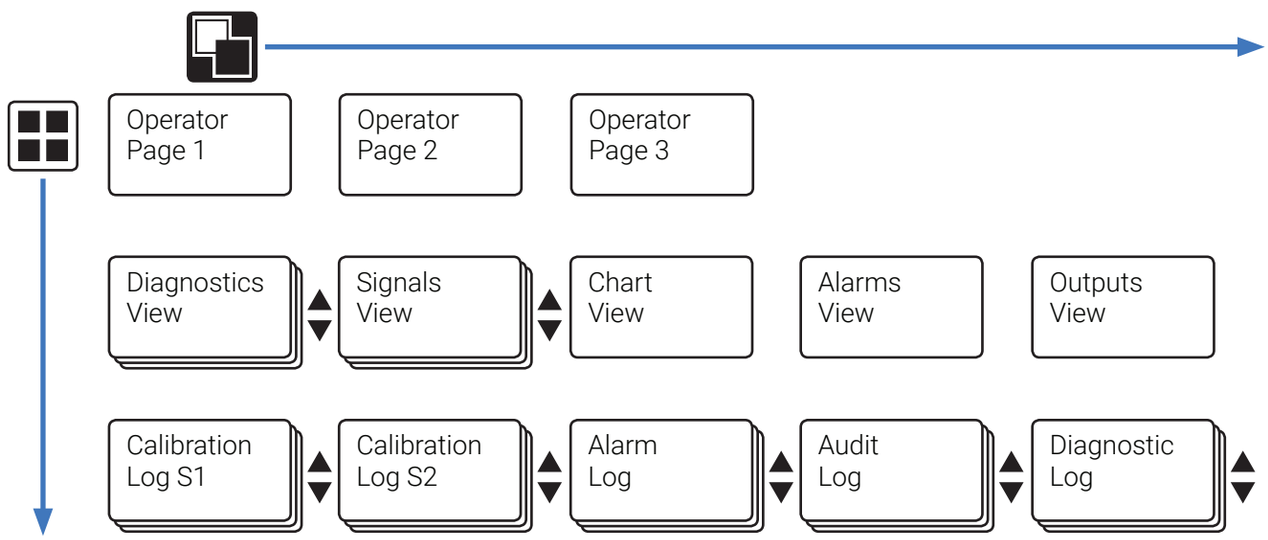
→ FRONT PANEL KEYS

The transmitter is operated using the front panel keys. Prompts associated with active keys are displayed on each screen.
For further information see Further information on page 4.



Key	Function	Description
A	Navigation key – left and Operator menu access key	When any Operating, View or Log page is displayed, opens or closes the Operator menu and returns to the previous menu level.
B	View key	Toggles the view between Operator pages, View screens and Log screens. **NOTE:** Disabled in Configuration mode.
C	Up key	Used to navigate up menu lists, highlight menu items and increase displayed values.
D	Down key	Used to navigate down menu lists, highlight menu items and decrease displayed values.
E	Group key	Toggles between: ● Operator pages (1 to 5) when an Operator page is selected with the View key. ● View screens (Diagnostics View, Signals View, Alarms View, and Outputs View) when the Diagnostics View screen is selected with the View key. ● Log screens (Calibration Log, Alarm Log, Audit Log and Diagnostics Log) when the Calibration Logs screen is selected with the View key. **NOTE:** Disabled in Configuration mode.
F	Navigation key – right and Cal shortcut key	At menu level, selects the highlighted menu item, operation button or edits a selection. When any Operator, View or Log page is displayed, used as a shortcut key to access the Calibrate level.

Menu navigation overview



NOTE: The calibration log for a sensor (S1 to S2) is displayed only if that sensor is fitted.

MECHANICAL INSTALLATION

→ LOCATION

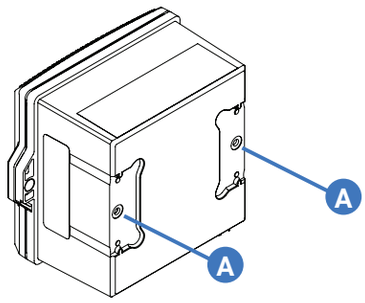
Install in a clean, dry, well ventilated and vibration-free location providing easy access. Avoid rooms containing corrosive gases or vapors, for example, chlorination equipment or chlorine gas cylinders.

- Ambient temperature: Min. –10 °C (–14 °F); Max. 55 °C (131 °F).
- Humidity: 0 to 95 % RH, non-condensing
- Avoid vibrations.

→ INSTALLATION ON THE FERTIKIT DOSING SYSTEM

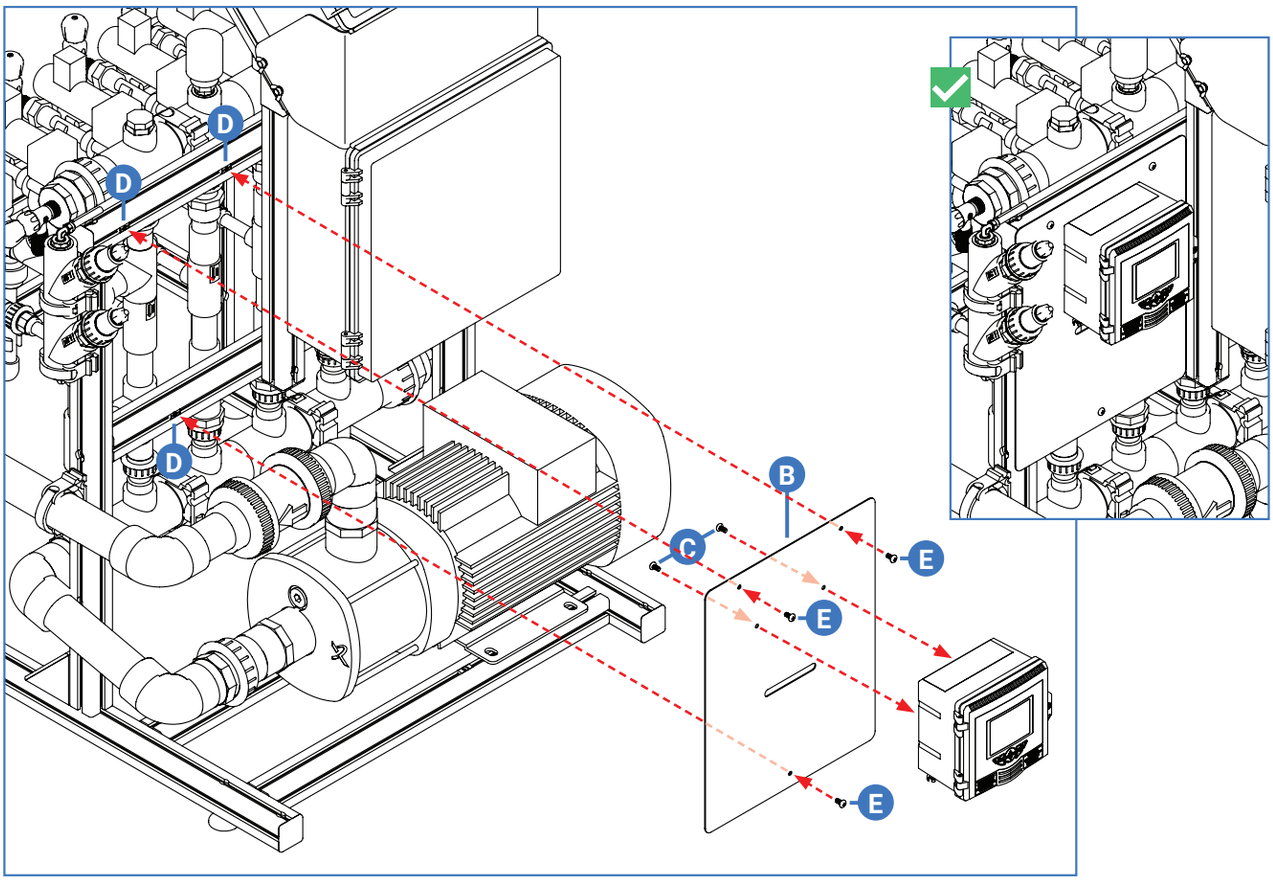
CAUTION
Use manual tools only.
Do not use an electric screwdriver.

The 2 recessed brass inserts **A** on the back of the transmitter are used for its connection to the aluminum plate **B**.



1. Attach the transmitter to the aluminum plate:
   Insert 2 screws **C** from the back trough the aluminum plate **B** and fasten them gently into the 2 recessed brass inserts **A** on the back of the transmitter (do not use excessive force).

2. Attach the aluminum plate to the FertiKit's frame:
   - Insert 3 metal inserts **D** into the tracks of the FertiKit's aluminum frame, oposit the location of the 3 holes in the aluminum plate **B**.
   - Insert 3 screws **E** from the front trough the aluminum plate **B** and fasten them into the 3 metal inserts **D**.



ELECTRICAL INSTALLATION

DANGER
Bodily injury

- Before making any connections, the external protective earth stud must be connected to the local earth bonding point using suitably sized ground cable – see page 13.
- The transmitter is not fitted with a switch – an isolation 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 transmitter, within easy reach of the operator and marked clearly as the isolation device for the transmitter.
- Remove all power from supply, relay, any powered control circuits and high common mode voltages before accessing or making any connections. For the mains power, use 3-core cable rated 3A and for the relay connections use cable rated 5A. Use cable rated 105 °C (221 °F) minimum that conforms to either IEC 60227 or IEC 60245, or to the National Electrical Code (NEC) for the US or the Electrical Code for Canada. The terminals accept cables AWG 24 to 16 (0.2 to 1.5 mm^2).
- All connections to secondary circuits must have insulation to required local safety standards. After installation, there must be no access to live parts, for example, terminals. Use screened cable for signal inputs and relay connections. Route signal leads and power cables separately, preferably in an earthed (grounded) flexible metal conduit.

USA and Canada only

- Supplied cable glands are an optional extra and provided for the connection of MODBUS, Profibus and Ethernet communication wiring ONLY. A special cable gland is supplied with the Ethernet communications option and should be used only for the Ethernet cable.
- The use of cable glands, cable/flexible cord for connection of the mains power source to the mains input and relay contact output terminals is not permitted in the USA or Canada.
- For connection to mains (the mains input and relay contact outputs), use only suitably rated field wiring insulated copper conductors rated min. 300 V, 16 AWG, 105 °C (221 °F). Route wires through suitably rated flexible conduits and fittings.

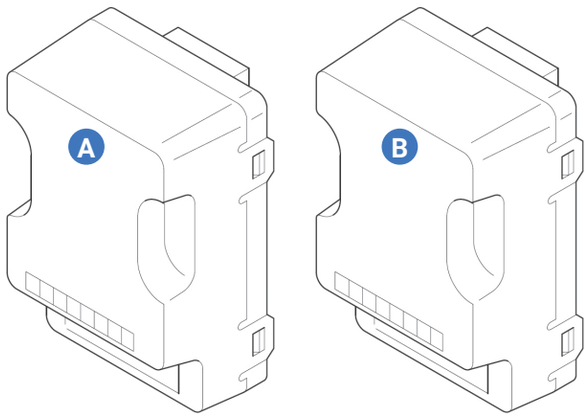
WARNING
Bodily injury

- If the transmitter is used in a manner not specified by the Company, the protection provided by the equipment may be impaired.
- Ensure the dosing system switchboard is fitted with an appropriate overcurrent circuit breaker.
- Replacement of the internal battery must be carried out by an approved technician only.
- The transmitter conforms to Installation Category II of IEC 61010.
- All equipment connected to the transmitter's terminals must comply with local safety standards (IEC 60950, EN61010-1).

→ INSTALLATION OF THE MODULES

Plug the modules to the transmitter baseboard:

- **A** Plug the EC sensor module to the middle post.
- **B** Plug the pH sensor module to the right post.



→ EARTH BONDING

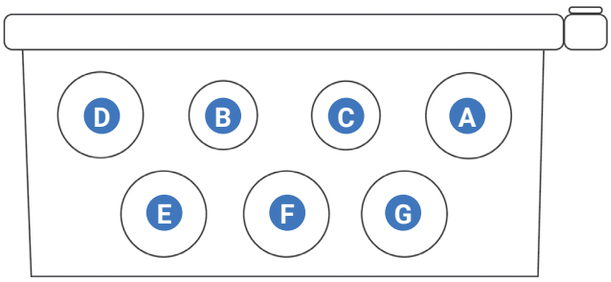
WARNING

Before making any electrical connections:

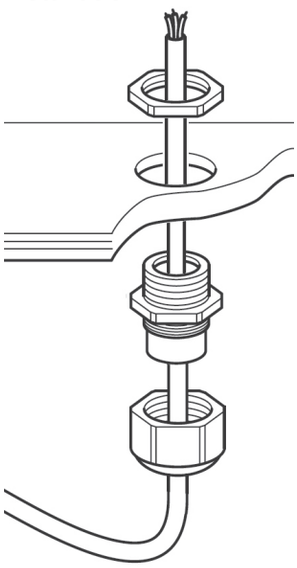
- The protective earth stud (see page 16) must be connected to the local earth bonding point using suitably sized ground cable. To connect to the protective earth stud, use a closed M4 cable lug (not supplied).
- Never connect the protective earth with an end sleeve or an open cable lug.

→ CABLE ENTRIES

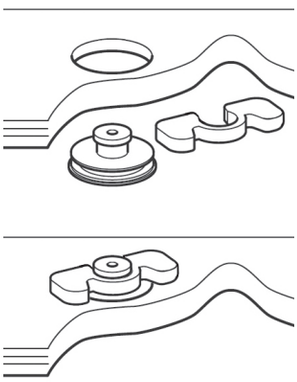
- **A** M20 – mains power
- **B** M16 – sensor 1
- **C** M16 – sensor 2
- **D** M20 – communications
- **E** M20 – digital I/O
- **F** M20 – analog outputs
- **G** M20 – relay contacts



Cable gland installation



Unused cable-entry plugs installation



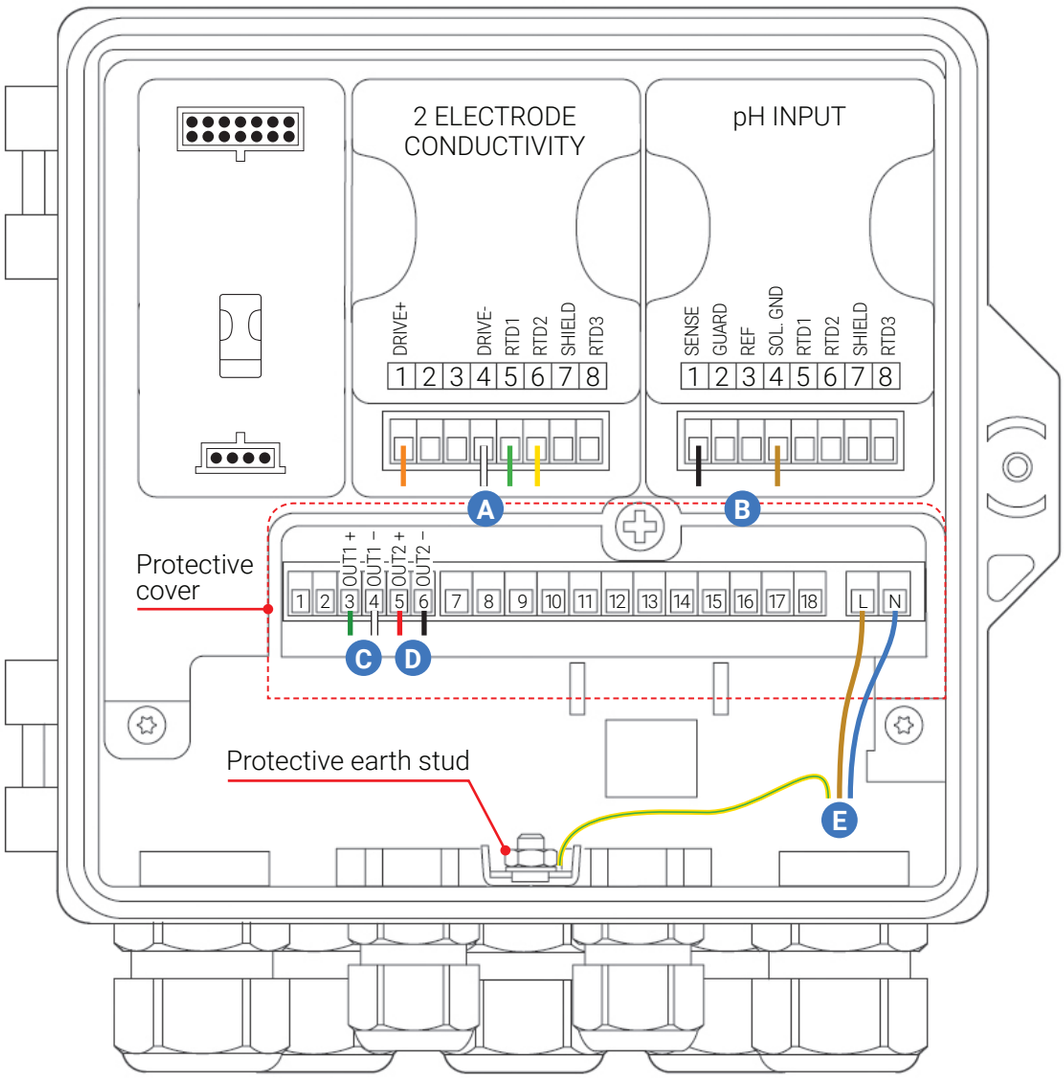
→ TERMINAL CONNECTIONS

Only the connections relevant to EC and pH seensing configuration are described.
(For the full connection scheme of the AWT420 transmitter see Further information on page 4).

WARNING

The main board connections are located under the protective cover. The transmitter AC version runs high current. To avoid electrocution make sure you put the protective cover back in place after wiring the transmitter.

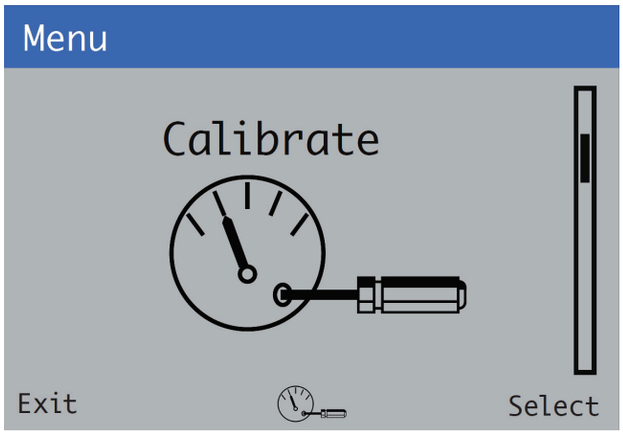
- **A** EC sensor
- **B** pH sensor
- **C** EC Analog output to controller (See your Controller User Manual).
- **D** pH Analog output to controller (See your Controller User Manual).
- **E** Mains - 110/220VAC, from your dosing system switchboard (See your Switchboard User Manual).



SENSOR CALIBRATION

The sensor calibration is a smart one-point calibration routine. The AWT420 transmitter automatically adjusts the offset, slope, or both in order to obtain the best sensor performance. Since this routine only uses the most recent calibration data, calibration can be conducted throughout the sensor's life thus ensuring consistent sensor performance. If an incorrect calibration has been entered, the Restore Cal Defaults menu returns transmitter calibration values to factory settings.

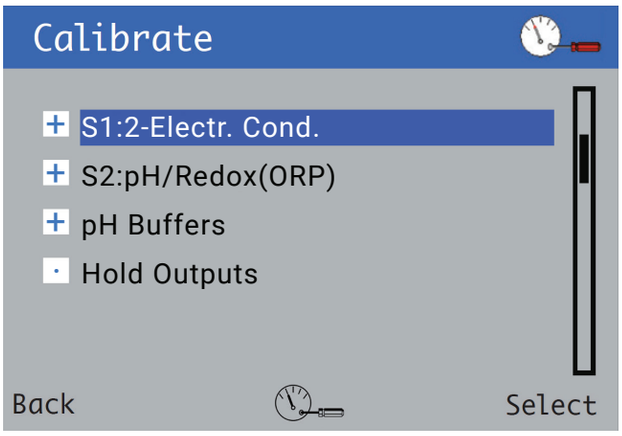
NOTE: Access the calibrate menu via the Calibrate and Advanced levels only.



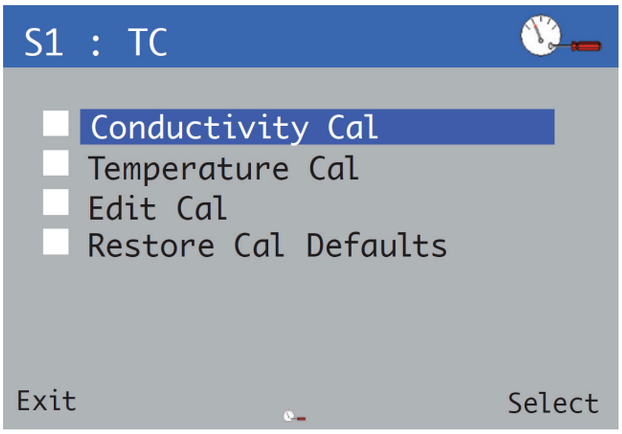
→ EC SENSOR CALIBRATION

Once the sensor has been installed and has reached the temperature of the process solution, verify the process variable value using a grab sample and an external validation device having the same type of temperature compensation.

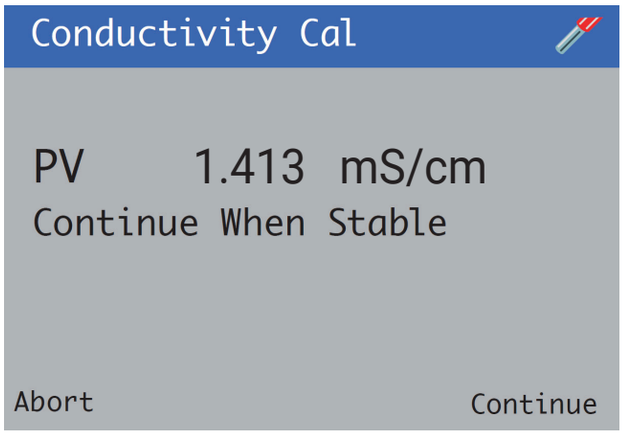
1. At the Calibrate level, press the ◤ key:
The **Calibrate** menu is displayed:



2. Use the ▲/▼ keys to select **S1 : TC** and press the ◤ key.
The **S1 : TC** menu is displayed:

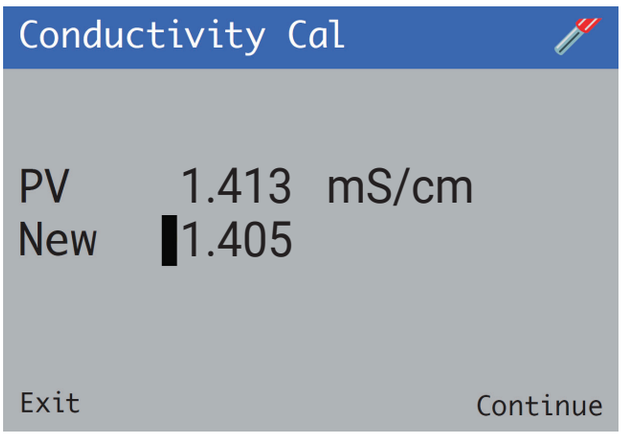


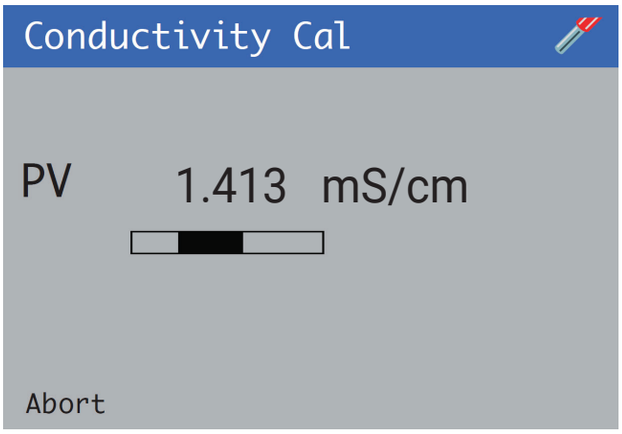
3. Use the ▲/▼ keys to select **Conductivity Cal** and press the ◤ key.
The **Conductivity Cal** menu is displayed:



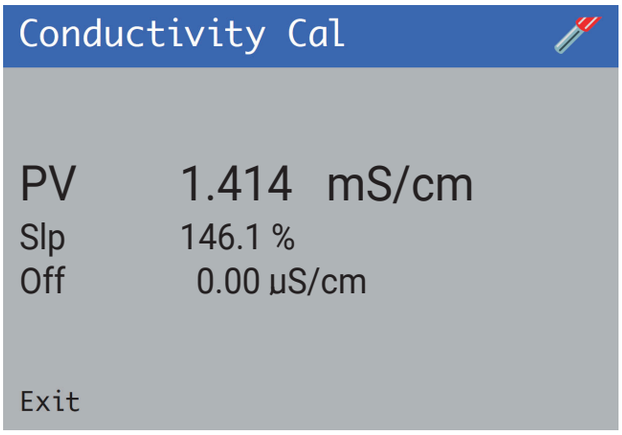
4. Confirm the displayed reading is stable and press the ◤ key.

5. Press the ◤ key to enter a new value (the transmitter takes several seconds to validate the calibration):.





If the new value is valid, Slope and Offset values are displayed.



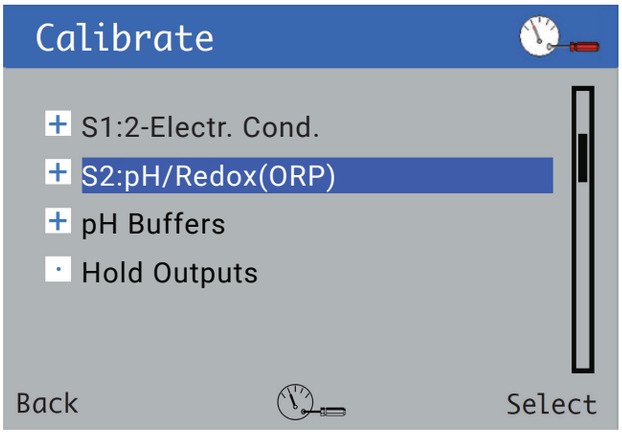
Invalid new calibration values generate an error message and the calibration value is not accepted.

NOTE: For troubleshooting see the link to the operating instructions on page 4.

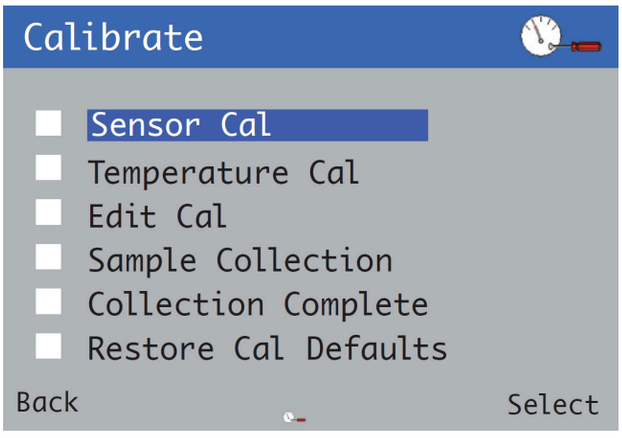
→ pH SENSOR CALIBRATION

NOTICE
Before starting the calibration process make sure the temperature of the buffer solutions is 25°C.

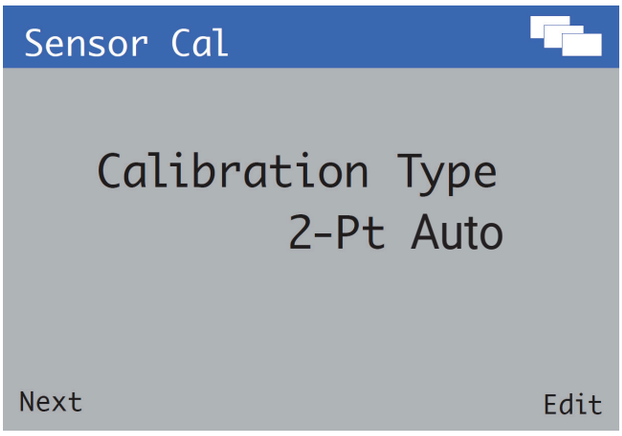
1. At the Calibrate level, press the ◤ key:
The **Calibrate** menu is displayed:



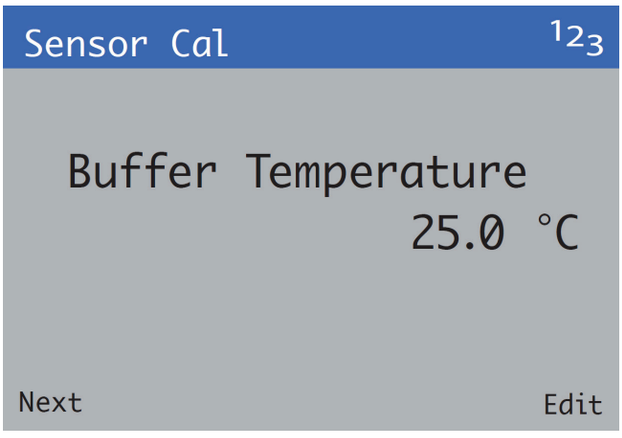
2. Use the ▲/▼ keys to select the sensor to be calibrated, and press the ◤ key to confirm selection.
The **pH calibration** menu is displayed:



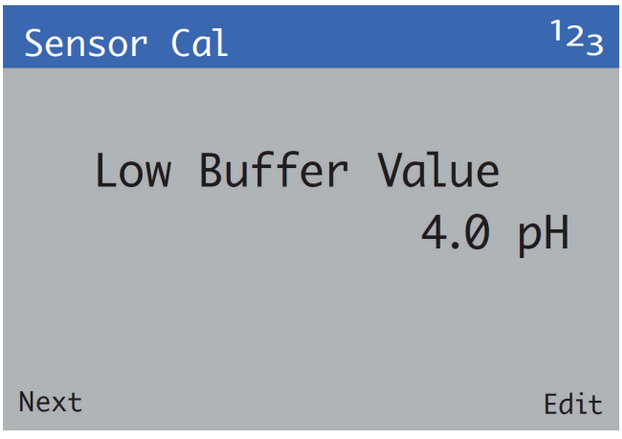
3. Use the ▲/▼ keys to select **Sensor Calibration** and press the ◤ key to confirm selection.
The **calibration type** menu is displayed:



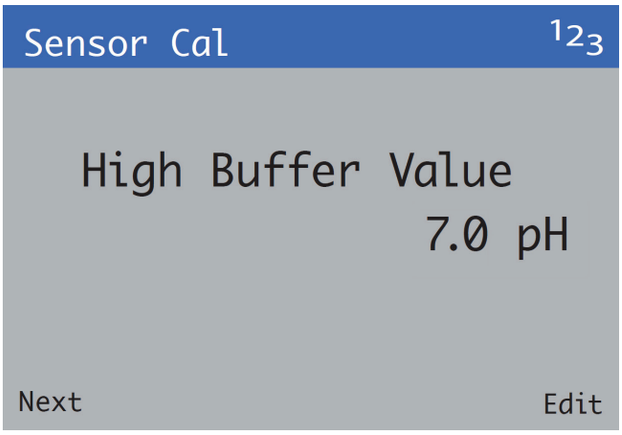
4. Use the ◤ key to edit the calibration type.
Use the ▲/▼ keys to select the required calibration type and press the ◤ key to confirm selection.
Press the ◥ key to proceed to the next step.
The buffer required temperature is displayed:



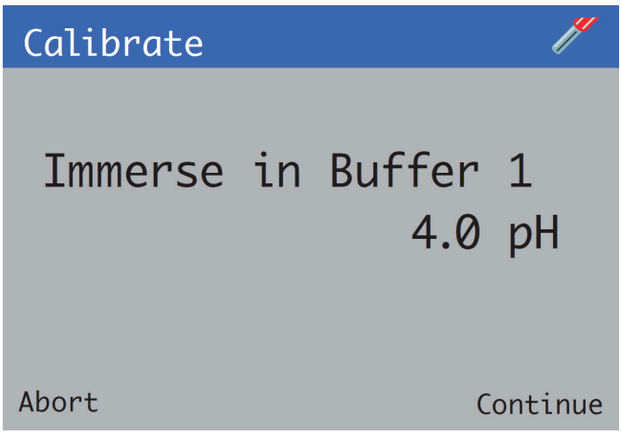
5. Use the ◤ key to edit the buffer temperature.
Use the ▲/▼ keys to set the temperature and press the ◤ key to confirm changes.
Press the ◥ key to proceed to the next step.
The first buffer value is displayed:



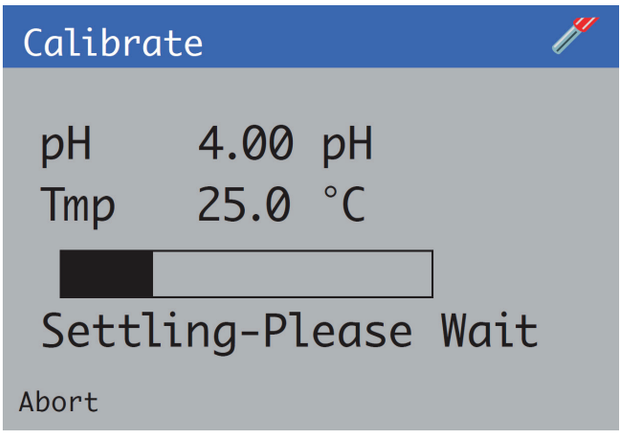
6. Use the ◤ key to edit the low buffer value. Use the ▲/▼ keys to set the value and press the ◤ key to confirm changes. Press the ◥ key to proceed to the next step. The second buffer value is displayed:



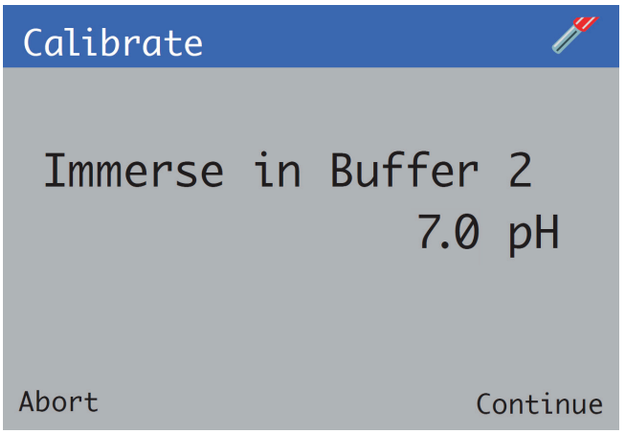
7. Use the ◤ key to edit the high buffer value. Use the ▲/▼ keys to set the value and press the ◤ key to confirm changes. Press the ◥ key to proceed to the low buffer calibration:



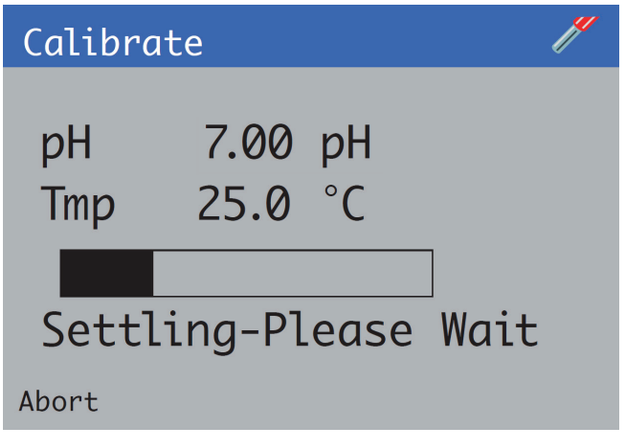
8. Place the sensor into buffer 1 and press the ◤ key to perform the low buffer calibration. The calibration process screen is displayed:

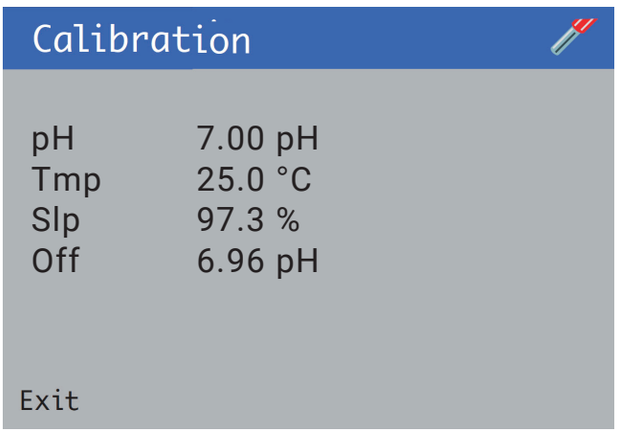


- If the calibration fails the result screen is displayed with the reason for failure.
- If the calibration passes the procedure moves automatically to the high buffer calibration.



9. Place the sensor into buffer 2 and press the ◤ key to perform the high buffer calibration. The calibration process screen is displayed:





On completion the result screen is displayed.

- If the calibration passes the slope and offset values are displayed.
- If the calibration fails, the failure reason is displayed.

NOTE: For troubleshooting see the link to the operating instructions on page 4.

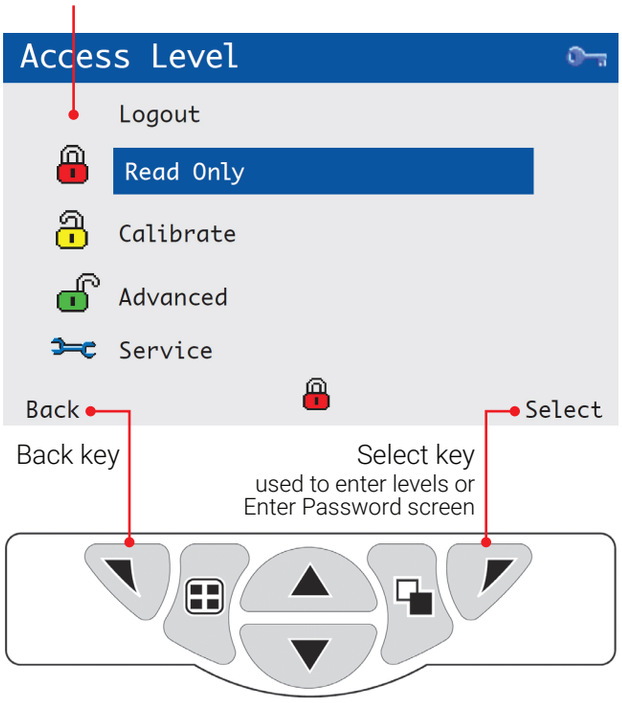
NOTE: The calibration can be canceled at any time during the process by pressing the Abort key.

10. After completion of the calibration process press the ◥ key consecutively until the main screen is displayed.

ACCESS LEVEL

The Access Level is entered via the Operator menu/Enter Configuration menu option.

- Access levels – scroll to level using the ▲/▼ keys and press the ◤ key (Select) to enter.



Access level menu details

Level	Access
Logout	Displayed only after Calibrate or Advanced levels are accessed. Logs the user out of the current level. If passwords are set, a password must be entered to access these levels again after selecting Logout.
Read Only	View all parameters in read-only mode.
Calibrate	Enables access and adjustment of Calibrate parameters. Calibration is sensor-specific – refer to the sensor Operating instruction for calibration details.
Advanced	Enables configuration access to all parameters.
Service	Reserved for authorized service technicians only.

SPECIFICATIONS

→ OPERATION

Display
89 mm (3.5 in) color 1/4 VGA TFT, liquid crystal display (LCD) with built-in backlight and brightness/contrast adjustment

Language
English, German, French, Italian, Spanish

Keypad
6 tactile membrane keys:
- Group select/Left cursor
- View select/Right cursor
- Menu key
- Up
- Down
- Enter key

No. of inputs
Up to 2 analog or digital sensors

→ MECHANICAL DATA

Protection
IP66/NEMA 4X

Dimensions
- Height: 144 mm (5.67 in) minimum (excluding glands)
- Width: 144 mm (5.67 in) door closed – min.
- Depth: 99 mm (3.89 in) door closed – min. (excluding fixing brackets)
- Weight: aluminium enclosure 1.36 kg (3 lb) approx. (unpacked)
- Weight: polycarbonate enclosure 1 kg (2.2 lb) approx. (unpacked)

Panel dimensions
- Cut-out height: 138 +1 –0 mm (5.43 +0.04 –0 in)
- Cut-out width: 138 +1 –0 mm (5.43 +0.04 –0 in)
- Thickness: 6.35 mm (0.25 in) max.
- Depth behind panel: 100 mm (4 in) min. (after fixing with brackets to panel)
- Distance between cut-outs: 40 mm (1.57 in) min.

Materials of construction
- Polycarbonate enclosure – LEXAN 505RU 10 % glass-filled polycarbonate

Cable entries
- Five holes to accept M20 or 1/2 in cable glands or conduit hubs
- Two holes to accept M16 cable glands or conduit hubs.

→ SECURITY

Password protection
Access to service levels is enabled only after the factory-authorized technician has entered a password.

→ ELECTRICAL

Supply voltage
- 100 to 240 V AC ±10 %, 50/60 Hz

Power consumption
<15W

Terminal connections rating
- Solid/Flexible wire: AWG 24 to 16 (0.2 to 1.5 mm^2)
- Ferrule with plastic sleeve 0.2 to 0.75 mm^2
- Ferrule without plastic sleeve 0.2 to 1.5 mm^2

Cable specification
Cable glands:
- M20: 5 to 9 mm (0.2 to 0.35 in)
- M16: 2 to 6 mm (0.08 to 0.24 in)
- 1/2 in NPT: 6 to 12 mm (0.24 to 0.47 in)
- Ethernet: 4.7 to 6.35 mm (0.187 to 0.25 in)

→ ANALOG OUTPUTS

Number
- Two supplied as standard

Output ranges
Analog output programmable to any value between 0 and 22 mA to indicate system failure

Accuracy
±0.25 % of reading or 10 µA (whichever is the greater)

Maximum load resistance
500Ω at 20 mA

Configuration
Can be assigned to either measured variable or either sample temperature

Isolation
500 V DC from any other circuitry but not from each other

→ RELAY OUTPUTS

- 4 standard single-pole changeover
- Fully-programmable
  - Contacts rating: 5A @ 110/240 V AC (Non-Inductive) 5A @ 30 V DC

→ DIGITAL INPUT/OUTPUT

- 1 standard, user-programmable as input or output
- Minimum input pulse duration: 125 ms
- Input – volt-free
- Output – open-collector, 12 to 24 V, 250 mA max.

→ DATA LOGGING

Storage media

SD card, up to 32 GB capacity (not supplied)

Storage

- Measurement value storage (programmable sample rate)
- Audit log and Alarm log (data stored in the same log file), Calibration log, Diagnostics log

Chart view

On local display

Historical review

Of data

Data transfer

SD card interface – Windows-compatible FAT file system, data and log files in Excel and DataManager Pro compatible formats

→ ENVIRONMENTAL DATA

Ambient operating temperature:

–10 to 55 °C (14 to 131 °F)

Ambient operating humidity:

Up to 95 % RH non-condensing

Storage temperature:

–20 to 70 °C (–4 to 158 °F)

Altitude:

2000 m (6562 ft) max. above sea level

→ EMC

Emissions & immunity

Meets requirements of IEC61326 for an industrial environment

→ APPROVALS, CERTIFICATION AND SAFETY

Safety approval

cULus

CE mark

Covers EMC & LV Directives (including latest version IEC 61010)

General safety

- IEC 61010-1
- Pollution degree 2
- Insulation class 1

Bluetooth

The Bluetooth Low Energy Module within the AWT420 transmitter has received the regulatory approval for the following countries:

- Europe/CE
- Japan/MIC: 005-101150
- Korea/KCC: MSIP-CRM-mcp-BM71BLES1FC2
- China/SRRC: CMIIT ID: 2016DJ5890
- United States/FCC ID: A8TBM71S2
- Canada/ISED
  - IC: 12246A-BM71S2
  - HVIN: BM71BLES1FC2
- Taiwan/NCC No: CCAN16LP0011T7

For further information see Further information on page 4.

SPARE PARTS

→ TRANSMITTER KIT

Description	Cat. No.
EC/pH transmitter, panel mount/wall mount AWT420	74360-007901

For other configurations contact you local Netafim™ representative.

→ MODULES

Description	Cat. No.
EC module replacement for AWT420	74360-007970
pH module replacement for AWT420	74360-007971

→ SENSORS

Description	Cat. No.
EC sensor, 12 mm ,temperat comp. PT100, for AWT420	45000-006705
pH sensor, 12mm, glass, BNC connection, for AWT420	45000-006692

WARRANTY

Prior to installation, the equipment referred to in this manual must be stored in a clean, dry environment, in accordance with the Company's published specification.

Periodic checks must be made on the equipment's condition.

In the event of a failure under warranty, the following documentation must be provided as substantiation:
- A listing evidencing process operation and alarm logs at time of failure.
- Copies of all storage, installation, operating and maintenance records relating to the alleged faulty unit.

Netafim warrants all the components of the product to be free of defects in material and workmanship for 1 (one) year from the date of installation, provided the installation has been reported to Netafim within 30 days of installation.

If the installation was not reported or was reported later than 30 days from the date of installation, Netafim will warrant the product for a period of 18 months from the date of production, according to its serial number.

If a defect is discovered during the applicable warranty period, contact your Netafim supplier. Netafim will repair or replace, at its discretion, the product or the defective part.

The above does not apply to EC and pH sensors, since they are wearable. Netafim will warrant these items to be free of defects in material and workmanship for 3 months from the date of installation, provided the installation has been reported to Netafim within 30 days, or 6 months from date of production if installation was not reported or was reported later than 30 days from the date of installation.

NOTE

When not installed, the pH sensor must be immersed in KCL solution at all time, protected from freezing and not be exposed to pressure greater than 7 bars (100 PSI). Damage due to these causes is not covered by warranty.

This warranty does not extend to repairs, adjustments or replacements of a product or part that results from misuse, negligence, alteration, force majeure, lightning, power surge, improper installation or improper maintenance.

Limited warranty

This warranty is subject to the terms and conditions contained in Netafim's official warranty statement, as such is in force from time to time.
For the full text of Netafim's official warranty statement, go to:
http://www.netafim.com/irrigation-products-technical-materials

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- HART is a registered trademark of the FieldComm Group
- iOS is a trademark of Apple Inc., registered in the U.S. and other countries.
- LEXAN is a registered trademark of SABIC GLOBAL TECHNOLOGIES B.V.
- Modbus is a registered trademark of Schneider Electric USA Inc.
- PROFIBUS is a registered trademark of PROFIBUS organization.

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