

1 PREPARATION

Checking the Code Number

AC210 Series 2-Electrode Carbon Cells

| | AC21 | X | /X | X | X | X | X |
|--|------|---|----|---|---|---|---|
| Insertion Cells | | | | | | | |
| G1 in. (BSP parallel) thread | | 1 | /3 | | | | |
| 1 in. NPT thread | | 1 | /4 | | | | |
| Flow-Through Cells | | | | | | | |
| Rp 1/2 in. (BSP parallel) thread | | 2 | /1 | | | | |
| 1/2 in. NPT thread | | 2 | /2 | | | | |
| Dip (Immersion) and Submersible Cells | | | | | | | |
| Submersible Cell, Requires dip holder for immersion | | 3 | /0 | | | | |
| Polypropylene dip, length 1m (3.3 ft) with fitted AC213/0 cell | | 3 | /1 | | | | |
| Polypropylene dip, length 2m (6.6 ft) with fitted AC213/0 cell | | 3 | /2 | | | | |
| Cell Constant K | | | | | | | |
| 0.10 | | | | | 3 | | |
| 1.00 | | | | | 4 | | |
| Temperature Compensator | | | | | | | |
| PT100 | | | | | | 1 | |
| Cable Connection Method | | | | | | | |
| Fixed Cable | | | | | | | 1 |
| Terminal Head | | | | | | | 2 |
| Detachable Connector | | | | | | | 3 |
| Cable Length | | | | | | | |
| None | | | | | | | 0 |
| 1m (3.3 ft) | | | | | | | 1 |
| 2m (6.6 ft) | | | | | | | 2 |
| 5m (16 ft) | | | | | | | 3 |
| 10m (33 ft) | | | | | | | 4 |
| 15m (49 ft) | | | | | | | 5 |
| 20m (66 ft) | | | | | | | 6 |
| Other length – consult factory | | | | | | | 9 |
| Language (Manual) | | | | | | | |
| English | | | | | | | 1 |
| French | | | | | | | 2 |
| Italian | | | | | | | 3 |
| German | | | | | | | 4 |
| Spanish | | | | | | | 5 |

AC220 Series 2-Electrode Stainless Steel Cells

| | AC22 | X | /X | X | X | X | X |
|--------------------------------|------|---|----|---|---|---|---|
| Insertion Cells | | | | | | | |
| G3/4 in. (BSP parallel) thread | | 1 | /1 | | | | |
| 3/4 in. NPT thread | | 1 | /2 | | | | |
| Cell Constant K | | | | | | | |
| 0.10 | | | | | 1 | | |
| 0.01 | | | | | 3 | | |
| Temperature Compensator | | | | | | | |
| PT100 | | | | | | 1 | |
| Cable Connection Method | | | | | | | |
| Fixed Cable | | | | | | | 1 |
| Terminal Head | | | | | | | 2 |
| Detachable Connector | | | | | | | 3 |
| Cable Length | | | | | | | |
| None | | | | | | | 0 |
| 1m (3.3 ft) | | | | | | | 1 |
| 2m (6.6 ft) | | | | | | | 2 |
| 5m (16 ft) | | | | | | | 3 |
| 10m (33 ft) | | | | | | | 4 |
| 15m (49 ft) | | | | | | | 5 |
| 20m (66 ft) | | | | | | | 6 |
| Other length – consult factory | | | | | | | 9 |
| Language (Manual) | | | | | | | |
| English | | | | | | | 1 |
| French | | | | | | | 2 |
| Italian | | | | | | | 3 |
| German | | | | | | | 4 |
| Spanish | | | | | | | 5 |

AC200 Replacement/Extension Cables

| | AC200 | XXX | X |
|--|-------|-----|-----|
| AC200 Cell Extension Cable | | | |
| For Terminal Head Versions AC2xx/xxx2 | | | 018 |
| For Detachable Connector Versions AC2xx/xxx3 | | | 008 |
| Cable Length | | | |
| None | | | 0 |
| 1m (3.3 ft) | | | 1 |
| 2m (6.6 ft) | | | 2 |
| 5m (16 ft) | | | 3 |
| 10m (33 ft) | | | 4 |
| 15m (49 ft) | | | 5 |
| 20m (66 ft) | | | 6 |
| Other length – consult factory | | | 9 |

For operation of AC221 Terminal Head version to 200°C, use high-temperature interconnecting cable 4TB3004-0008. Order quantity by foot.

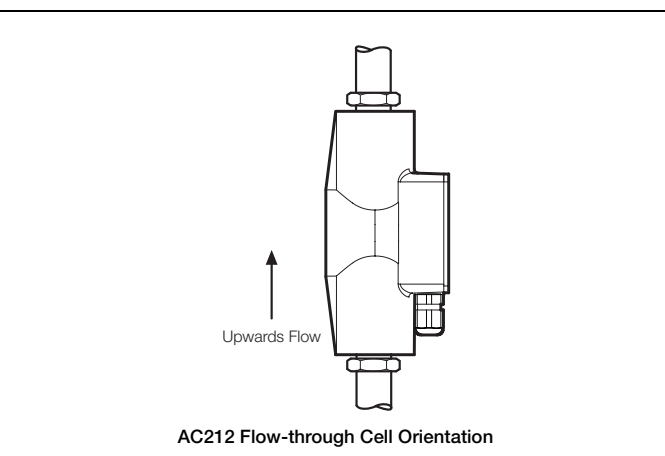
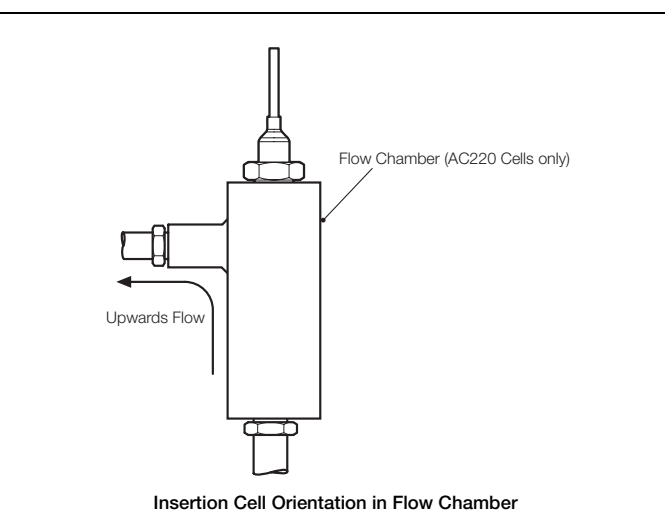
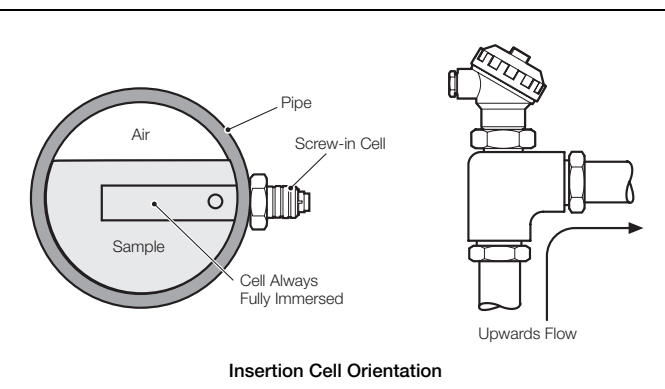
Cleaning

Before installing the conductivity cell, clean the electrodes, – see Section 6.

2 SITING

Caution. Ensure the integral cable (where applicable) does not touch hot or abrasive objects.

Note. Allow sufficient clearance for easy removal of cell for cleaning – refer to Section 3 for overall dimensions of cells.

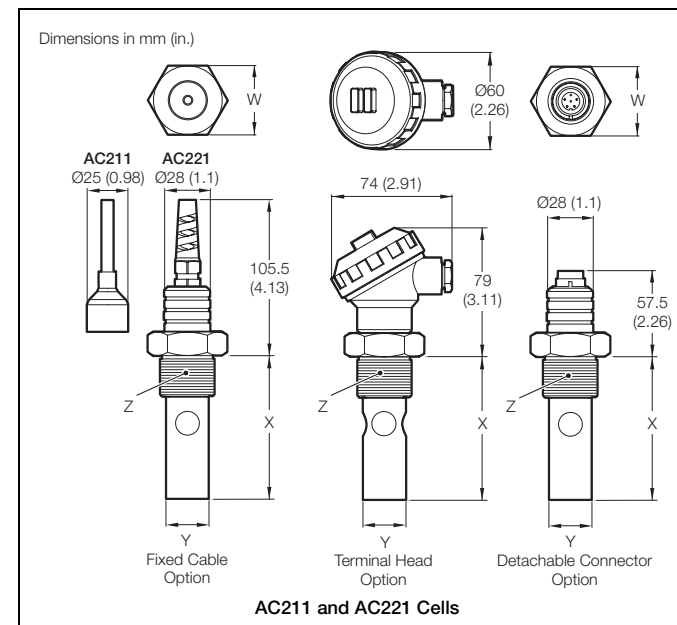


| Cell Type | Max. Temperature | Max Pressure | Acid/Alkali Concentration |
|------------------|------------------|------------------------|---------------------------|
| AC211 | 100 °C (212°F) | 7 Bar A (100psi) | 5% Acid 8% Alkali |
| AC212 | 100 °C (212°F) | 7 Bar A (100psi) | |
| AC213/0 | 80 °C (176°F) | 10m Water Head (1bar) | |
| AC213/1 & 2 | 90 °C (194°F) | 2m Water Head (0.2bar) | |
| AC221 (See Note) | 110 °C (230°F) | 20 Bar A (290psi) | |

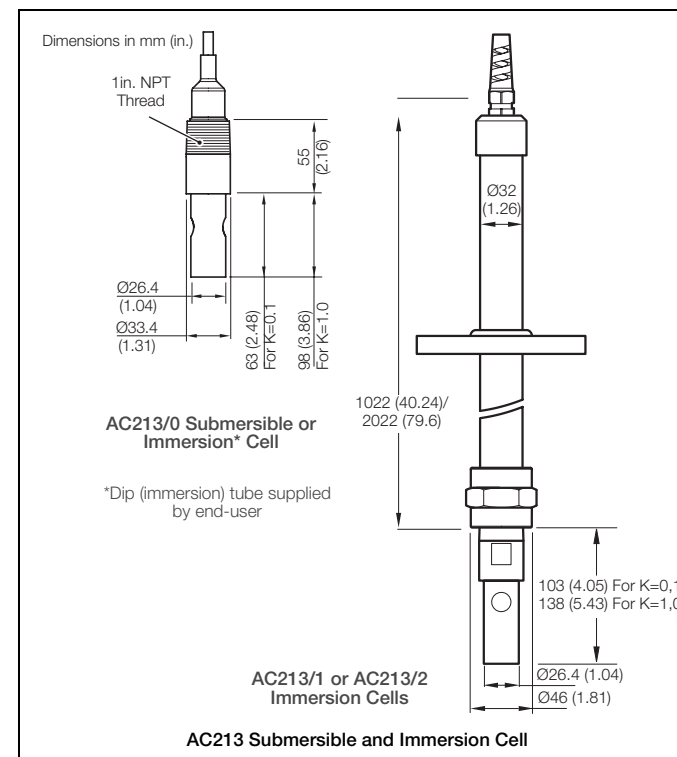
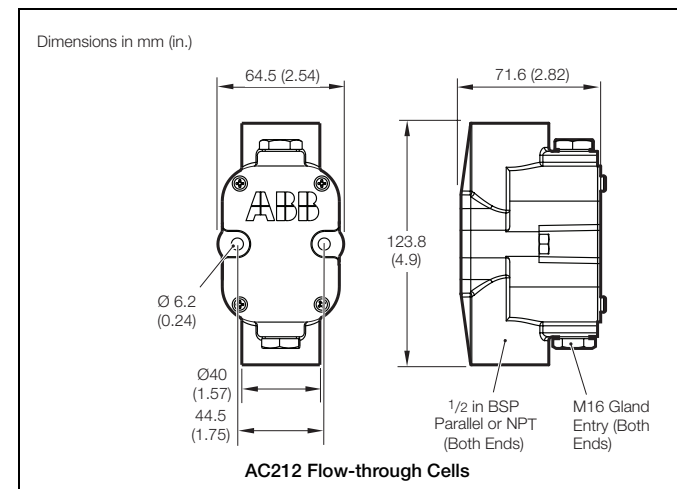
Note. This temp rating applies to all AC221 cells. The terminal head versions (AC221/xxx2xx) are rated to 200oC (392oF)*.

*Requires ABB high temperature cable (see bottom left), otherwise rating is as standard AC221 cells.

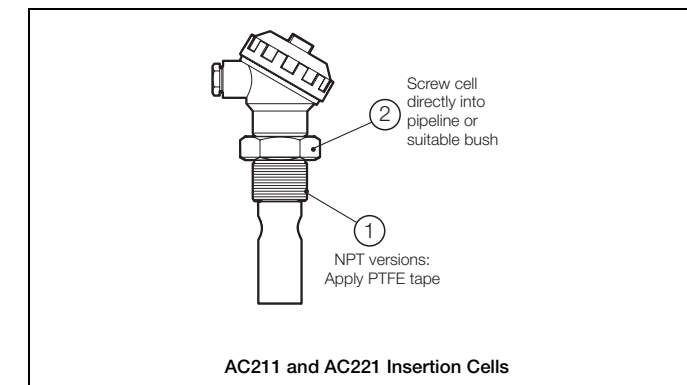
3 OVERALL DIMENSIONS



| | AC211 Carbon Cells | | AC221 Stainless Steel Cells | |
|---|------------------------|--------------|-----------------------------|------------|
| | K=1.0 | K=0.1 | K=0.1 | K=0.01 |
| W | 42.5 (1.67) | | 33 (1.3) | |
| X | 123 (4.84) | 88 (3.46) | 47 (1.85) | 91 (3.58) |
| Y | Ø26.4 (1.04) | Ø26.4 (1.04) | Ø20 (0.79) | Ø16 (0.63) |
| Z | 1in. BSP or NPT Thread | | 3/4in. BSP or NPT Thread | |

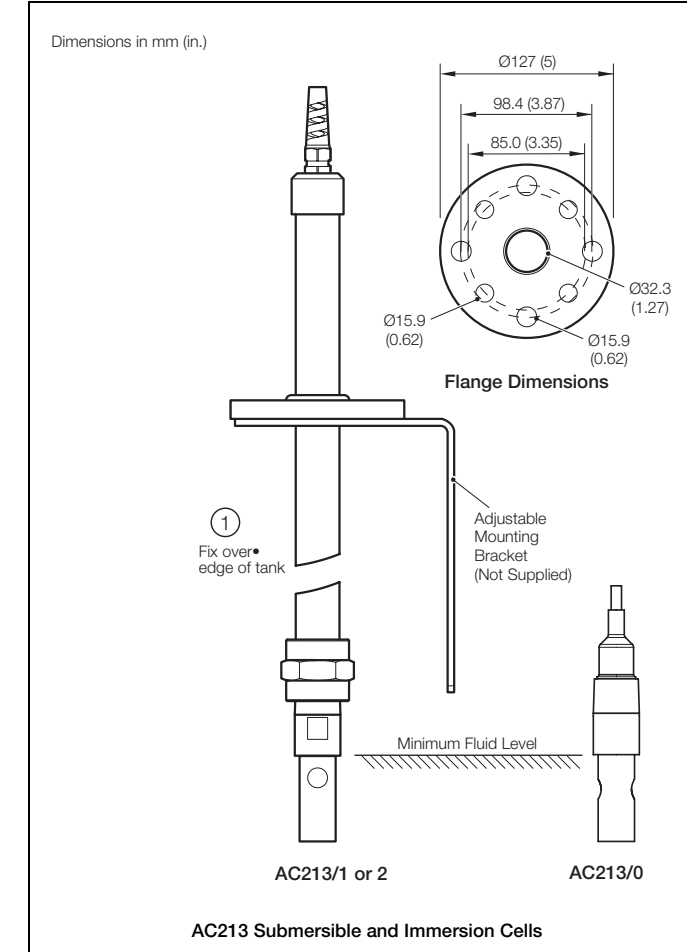
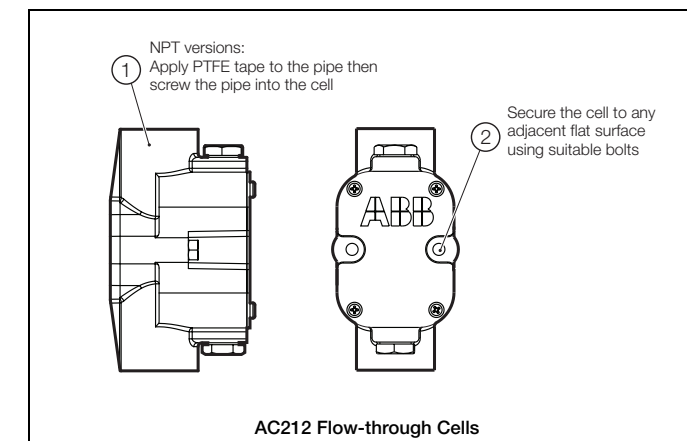


4 INSTALLATION



Caution. Overtightening may damage the cell body.

Note. For BSP process connections, a parallel thread must be used.



Caution. After cleaning and installing the conductivity cell, ensure that it remains filled with liquid and is not allowed to dry out. Ensure that the electrode bore remains fully immersed at minimum fluid levels.

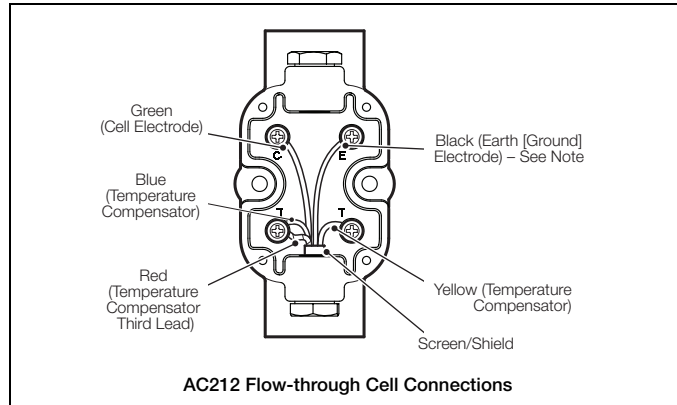
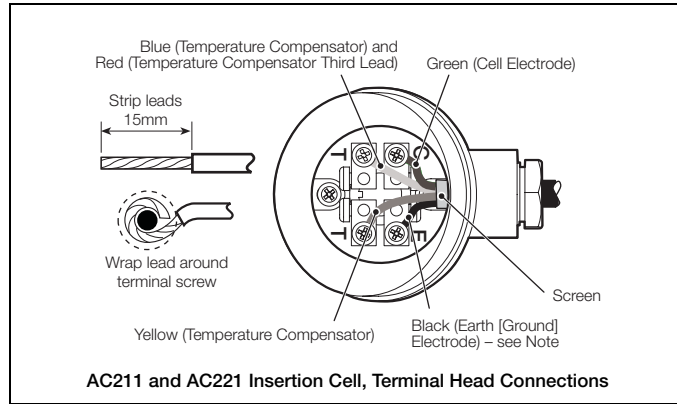
5 ELECTRICAL CONNECTIONS

Warning. Before making any connections, ensure that the power supply, any high voltage-operated control circuits and high common mode voltages are switched off.

Note. For details of connecting the cable to the analyzer, refer to Section 5.2 or the User Guide for the analyzer.

Terminal Head Connections

Note. The screen is cut back and left unconnected on earthed (grounded) cells.



Connections to AX41x, TB82 and 4620 Conductivity Transmitters

| | AX41x | | TB82TE | 4620 | 4625 |
|--------|----------|----------|--------|------|------|
| | Sensor B | Sensor A | | | |
| Blue | B1 | B9 | TB2-5* | 7 | 6 |
| Red | B2 | B10 | TB2-5* | 6 | 7 |
| Yellow | B3 | B11 | TB2-6 | 5 | 8 |
| Screen | B4 | B12 | TB2-7 | 1 | 12 |
| Green | B5 | B13 | TB2-1 | 3 | 10 |
| Black | B6** | B14** | TB2-4 | 4 | 9 |

* Wires are connected to the same terminal.

** When connecting non-metal conductivity cells that are isolated from earth (ground), e.g. mounted in plastic, link the following terminals to the earth (ground) stud on the analyzer case:

AX41x Terminal B14
AX411 Terminal B6
4620 Terminal 4
4620 Terminal 9

Notes.

- When connecting earthed (grounded) metal conductivity cells, ensure that the cell earth (ground) and the analyzer earth (ground) are at the same potential.
- The additional white wire **is not** required and can be cut off.
- Do not** mistake the black spacer for the black wire.

6 CLEANING

Caution. While cleaning, do not wet the electrical connection terminals.

6.1 Cleaning the Measuring Cell

Conductivity cells require periodic cleaning, the frequency of which depends on the particular application in which they are employed. Although measuring cells are free of contamination when supplied, they should be cleaned prior to installation.

Caution. Do not touch the cell bore by hand or use sharp implements when cleaning the cell.

6.1.1 A210 Series 2-Electrode Carbon Cells

Thoroughly clean the electrode with a 1:1 solution of water and non ionic detergent using the bottle brush provided. For more tenacious deposits, a 2% hydrochloric acid solution may be used. After cleaning, rinse the cell several times in distilled water and then examine it. Looking through the bore towards a source of illumination, the surface should have an evenly wetted appearance. If the surface has dry patches where the water has 'peeled' away this is an indication of the presence of grease and repeated cleaning and rinsing is required until the cell bore is wetted evenly.

6.1.2 A220 Series 2-Electrode Stainless Steel Cells

Unscrew the outer electrode. Thoroughly clean the electrode with a 1:1 solution of water and detergent using the bottle brush provided. For more tenacious deposits, a 2% hydrochloric acid solution may be used.

After cleaning, rinse the cell thoroughly in distilled water and examine it. With a source of illumination shining into the electrode system, the interior surface of the outer electrode and the whole of the central electrode should have an evenly wetted appearance. If the surfaces have dry patches where the water has 'peeled' away this is an indication of the presence of grease and repeated cleaning and rinsing is required until the electrodes are evenly wetted. Refit the outer electrode.

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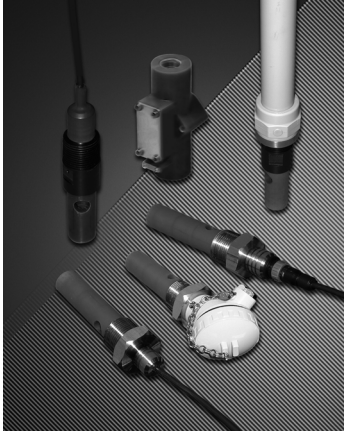
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ABB

ABB Limited
Oldends Lane, Stonehouse
Gloucestershire
GL10 3TA
UK
Tel: +44 (0)1453 826661
Fax: +44 (0)1453 829671

ABB Inc.
125 E. County Line Road
Warminster
PA 18974
USA
Tel: +1 215 674 6000
Fax: +1 215 674 7183

IM/AC2CO Issue 7



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One or more of the following symbols may appear on the instrument labelling:

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Client 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:
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Fax: +1 (0) 775 850 4808

Tel: +1 (0) 775 850 4800

ABB Inc.

United States of America

Fax: +44 (0)1453 826661

Tel: +44 (0)1453 827566

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4. Normal safety precautions must be taken to avoid the possibility of an accident occurring when operating in conditions of high pressure and/or temperature.
5. Chemicals must be stored away from heat, protected from temperature extremes and powders kept dry. Normal safe handling procedures must be used.
6. When disposing of chemicals ensure that no two chemicals are mixed.
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