

## 4600 Series pH/Redox (ORP) Analyzer

- **Comprehensive range of field-proven electrode systems and electrodes** – satisfies broad range of applications.
- **Comprehensive diagnostics facility with in-built software protection** – ensures security and confidence in operation
- **Fully automatic buffer recognition** – allows buffering in either order.
- **Solution temperature compensation as standard** – essential for ammonia-dosed high purity boiler water applications.
- **Compact transmitter enclosure** – saves space, reduces installation cost.
- **IP66/NEMA4X** – reliable operation in demanding environments.
- **Water Wash facility** – enhances performance in difficult applications
- **English, French, German, Italian and Spanish software** – simple, user-selection of display language.



*A high specification pH/Redox (ORP) analyzer offering advanced functionality, simple operation and reliability in harsh environments.*

ABB Instrumentation



The 4630 Series pH/Redox (ORP) analyzer comprises a transmitter and a sensing system to accurately, and reliably, measure and transmit the pH/Redox (ORP) value in a range of water monitoring applications.

The 4630 Series analyzer offers high performance and advanced functionality in a compact cost effective package. It is rugged and reliable for safe operation in harsh environments, simple to install and use, and requires minimum maintenance.

### Sensor System

The sensing system can be selected to suit the application from an extensive choice of dip, flow, in-line and withdrawable versions.

The design and method of construction has resulted in a world class product with an enviable reputation for longevity, quality and reliability.

### The 4600 Series Universal Transmitter

The 4600 series universal transmitter provides the operator interface and communications to other devices. The signal from the sensing system is converted by the transmitter and the information is presented on a large custom designed, easy to read, back-lit liquid crystal display (L.C.D.) as a pH or Redox (ORP) value.

A process retransmission signal and two alarm relay outputs are provided as standard, while an optional RS485 serial interface allows the transmitter to be easily incorporated into the PC30 supervisory system.

Available in a wall mounted or 1/4 DIN panel mounted version the transmitter is protected to IP66/NEMA4X, ensuring reliable operation in the most demanding situations. The same level of protection is maintained during programming and calibration.

### User Friendly Operation

An easy to read display is used in conjunction with the four tactile membrane key pads to prompt the user through the programming procedures. Included as standard is a five language software package, to display information in one of English, French, German, Italian or Spanish languages.

### Easy Installation, Commissioning and Maintenance

Compact panel or wall mounting transmitter allows flexible and easy installation. The unique L.C.D. is easy to read in all light conditions. Used in conjunction with the membrane key pad it simply prompts the user through the set up procedure. Range, alarm levels, set point adjustments and system calibration are easily set.

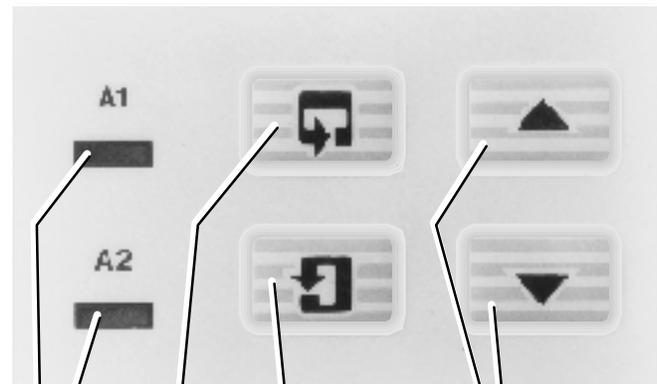
### Water Wash Models 4631 and 4636

The instrument can be supplied with the capability to automatically wash the pH electrode using normal mains water when used with the 7670 Series of cartridge pH/Redox system. This facility can significantly improve the performance and reduce the maintenance on difficult applications.

### Confidence in Service

To complement the well proven design and unrivalled accuracy and reliability in service of the sensors the entire sensing loop is regularly self monitored for short circuits and temperature element faults. The instrument includes non-volatile memory eliminating the need for battery back-up and line voltage supply filtering to minimize the effects of mains borne interference.

Instrument Key Pads



Alarm L.E.D.s    Advance to next page    Advance to next parameter    Select parameter or adjust parameter value



Wash in process

**DISPLAY****Measured value:**

5-digit x 7-segment back-lit L.C.D.

**Information:**

16-character, single line, dot matrix, back-lit L.C.D.

**Ranges:**Programmable 0 to 14pH  $\pm$ 1000mV.**Minimum range:**

Any 5pH units or 300mV.

**Resolution:**

0.1pH, 1mV.

**Accuracy:** $\pm$ 0.01pH,  $\pm$ 1mV.**Temperature compensation:**

-10° to 110°C (14° to 230°F) manual or automatic via Pt100 resistance thermometer.

**ENVIRONMENTAL DATA****Operating temperature limits:**

-20° to 55°C (-4° to 130°F).

**Storage temperature limits:**

-25° to 70°C (-13° to 158°).

**Operating humidity limits:**

Up to 95%RH non-condensing.

**POWER SUPPLY****Voltage requirements:**100 to 130V or  
200 to 260V 50/60Hz.**Power Consumption:**

&lt; 6VA.

**Error due to power supply variations:**

Less than 2% for +6% -20% variation from nominal supply voltage.

**Insulation:**

Mains to earth (line to ground) 2kV r.m.s.

**OUTPUTS AND SET POINTS****No. of Relays:**

Two.

**Set point adjustment:**

Programmable.

**Water Wash**No. of relays – one for control  
– one for wash wash**Frequency of wash**

15 minutes, 30 minutes, 45 minutes, 1 hour, 2 hour up to 24 hours in 1 hour increments

**Duration of wash**

15 seconds, 30 seconds, 45 seconds, 1 minute, 2 minutes, 3 minutes, 4 minutes or 5 minutes

**Set point differential** $\pm$ 1% of span.**Relay contacts:**Single pole changeover  
Rating 250V a.c. 250V d.c. max.  
3A a.c. 3A d.c. max.Loading: (non-inductive) 750VA 30W max.  
(inductive) 750VA 3W max.**Insulation:**

2kV r.m.s. contacts to earth (ground).

**No. of set points:**

Two.

**Set point adjustment:**

Programmable.

**Set point hysteresis:** $\pm$ 1% fixed.**Local set point annunciation:**

Red L.E.D.

**RETRANSMISSION****No. of retransmission signals:**

One fully isolated.

**Output current:**

0 to 10mA, 0 to 20mA or 4 to 20mA programmable.

**Accuracy:** $\pm$ 0.25% f.s.d. or  $\pm$ 0.5% reading.**Resolution:**

0.1% at 10mA, 0.05% at 20mA.

**Maximum load resistance:**

750W (20mA max.).

**Serial communication:**

RS485 (optional extra).

**MECHANICAL DATA****Mounting:**

Model 4630/31 wall mounting, Model 4635/36 panel mounting.

**Protection:**

Model 4630/31 – IP66/NEMA4X, Model 4635/36 – IP66/NEMA4X front.

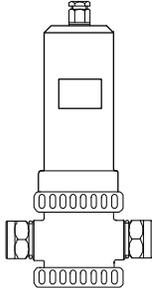
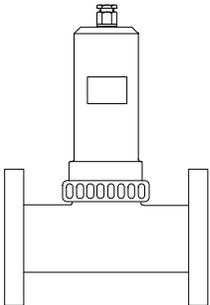
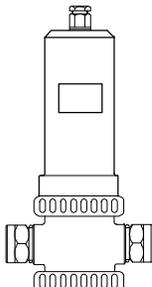
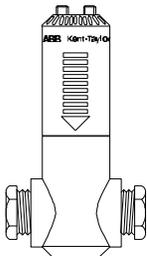
**Dimensions:**

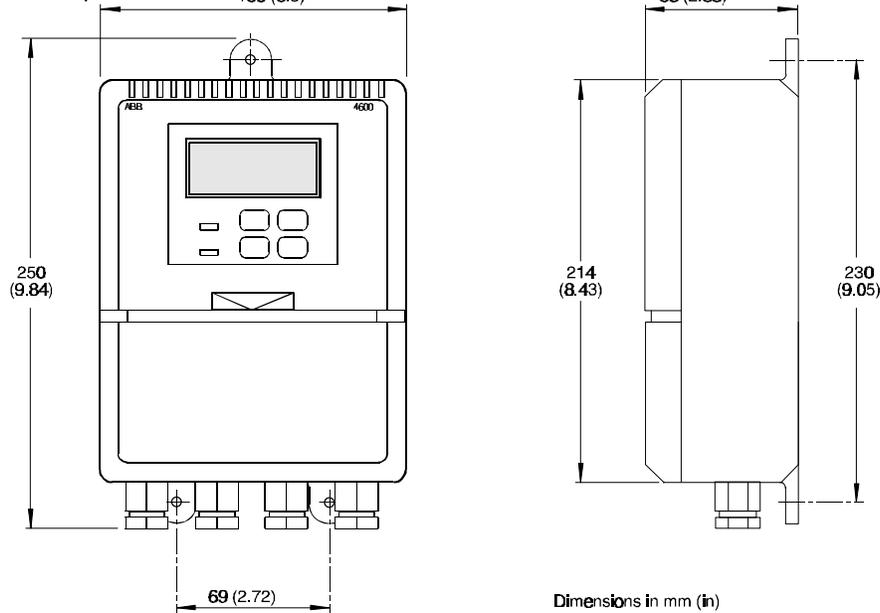
Model 4630/31 – 160mm (6.30in) wide x 214mm (8.43in) high x 68mm (2.68in) deep.

Model 4635/36 – 96mm (3.78in) x 96mm (3.78in) x 191mm (7.52in).

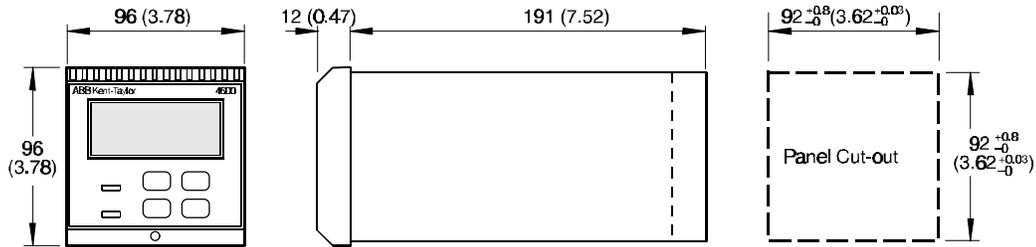
Panel cut-out: 92<sup>+0.8</sup><sub>-0</sub> mm x 92<sup>+0.8</sup><sub>-0</sub> mm(3.62<sup>+0.03</sup><sub>-0</sub> in x 3.62<sup>+0.03</sup><sub>-0</sub> in).**Weight:**Model 4630/31 – 2kg (4<sup>1</sup>/<sub>2</sub>lb).  
Model 4635/36 – 1.5kg (3<sup>1</sup>/<sub>4</sub>lb).

Select the required model number from those listed below.

<p><b>7651</b></p> 	<p><b>Specification</b></p> <p><b>Body material:</b> Glass coupled polypropylene.  <b>Operating temperature range:</b> -5° to 100°C (23° to 212°F).  <b>Max. temperature:</b> 100°C at 2 bar (212°F at 29 psi ).  <b>Max. operating pressure:</b> 10 bar at 20°C (145psi at 68°F).  <b>Process connection (standard):</b> 1in BSP female 1½in BSPT adaptor.  <b>Process connection (optional):</b> ½in NPT female adaptor. Other flanges to order.  <b>Mounting:</b> Direct panel mounting or wall mounting with brackets supplied.</p>
<p><b>7652</b></p> 	<p><b>Specification</b></p> <p><b>Body material:</b> Glass coupled polypropylene and polypropylene.  <b>Operating temperature:</b> -5° to 80°C (23° to 176°F).  <b>Max. temperature:</b> 80°C (176°F) at atmospheric pressure.  <b>Max. operating pressure:</b> 2.75 bar at 20°C (40psi at 68°F).  <b>Process connections (standard):</b> 2in BSP flange.  <b>Process connections (optional):</b> 51mm (2in) DIN flange.  <b>Mounting:</b> In pipeline.</p>
<p><b>7654/5/6</b></p> 	<p><b>Specification</b></p> <p><b>Body material:</b> Glass coupled polypropylene and polypropylene.  <b>Operating temperature:</b> -5° to 80°C (23° to 176°F).  <b>Max. temperature:</b> 80°C (176°F) at atmospheric pressure.  <b>Max. operating pressure:</b> 2.75 bar at 20°C (40psi at 68°F).  <b>Process connection (standard):</b> Open tank.  <b>Process connection (optional):</b> Sealed, adjustable flange.  <b>Mounting:</b> 7654 – 1 clamp system  7655/6 – 2 clamp system.  <b>Stem length:</b> 1m, 2m or 3m.</p>
<p><b>7660</b></p> 	<p><b>Specification</b></p> <p><b>Body material:</b> 316 stainless steel (wet section).  <b>Operating temperature:</b> 0 to 100°C. (32 to 212°F) with high temp. electrodes.  <b>Max. temperature:</b> 100°C at 6.6 bar (212°F at 100 psi).  <b>Max operating pressure:</b> 6.6 bar at 20°C (100 psi at 68°F).  <b>Process connections (standard):</b> ½in or 1in BSP.  <b>Process connections (optional):</b> ¾in NPT.  <b>Mounting:</b> Panel or wall.</p>
<p><b>7670</b></p> 	<p><b>Specification</b></p> <p><b>Body material:</b> Glass coupled polypropylene.  <b>Operating temperature:</b> 0 to 100°C (32° to 212°F).  <b>Max. temperature:</b> 100°C (212°F) at atmospheric pressure.  <b>Max. operating pressure:</b> 6.6 bar at 20°C (100 psi at 68°F).  <b>Process connection (standard):</b> ½in or 1in BSP.  <b>Dip Systems:</b> 1m, 2m and 3m (39in, 78in, 118in).  <b>Screw-in Systems:</b> 1in NPT</p>



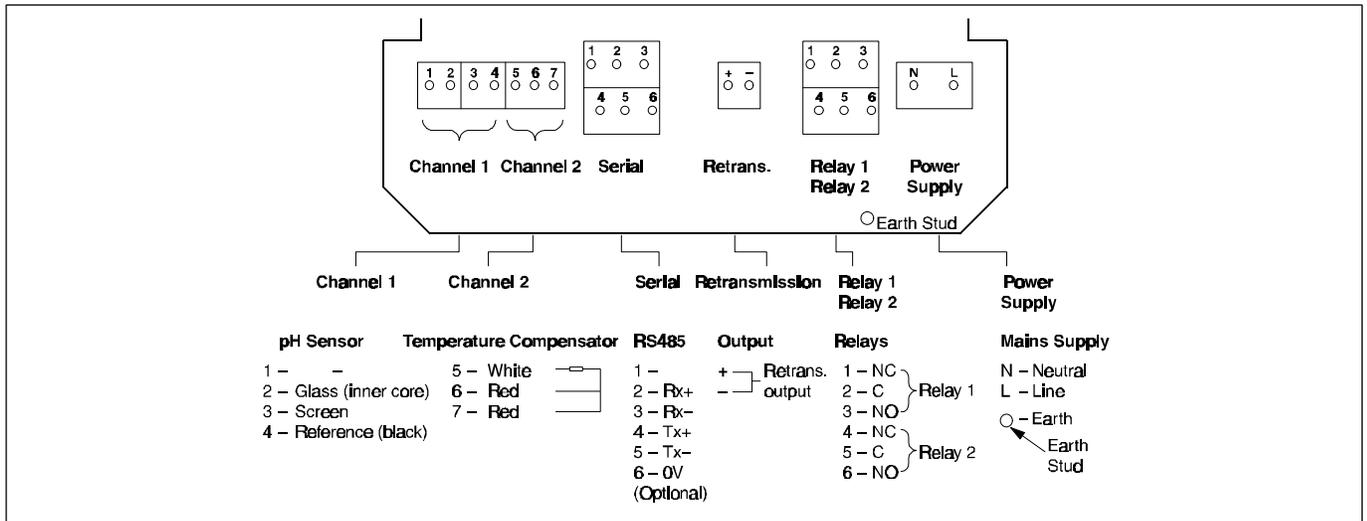
Model 4630 and 4631



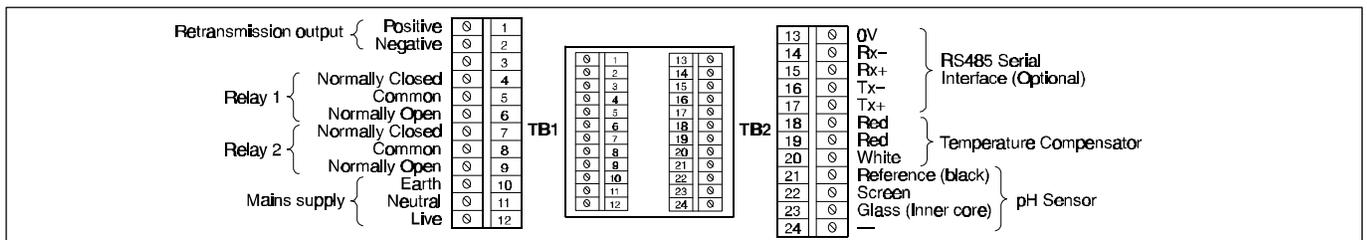
Dimensions in mm (in)

Model 4635 and 4636

Outline Dimensions



Connections for Wall Mount Model 4630



Connections for Panel Mount Model 4635

**ORDERING INFORMATION**

**4600 SERIES pH AND REDOX ELECTRODE SYSTEM**

Select one character or set of characters from each category and specify complete catalog number as per sample below.

Code No.	Description
	<b>4600 SERIES pH - TRANSMITTERS</b>
	<b>BASE NUMBER - 1<sup>st</sup> through 5<sup>th</sup> Characters</b>
<b>4630-</b>	Wall mount pH Transmitter
<b>4631-</b>	Wall mount pH Transmitter With Water Wash
<b>4635-</b>	Panel mount pH Transmitter
<b>4636-</b>	Panel mount pH Transmitter With Water Wash
	<b>OPTIONS - 6<sup>st</sup> through 8<sup>th</sup> Characters</b>
<b>500</b>	Standard Configuration
<b>700</b>	with RS485 ModBus Communications
<b>800</b>	with Second Current Output
	 <b>ACCESSORIES</b>
<b>155S997</b>	Pipe Mount Bracket for 4600 Series Transmitter



The Company's policy is one of continuous product improvement and the right is reserved to modify specifications contained herein without notice.

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SS 4630/4635 97.3

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