

4600 Series Conductivity Analyzer

■ **Comprehensive range of field-proven conductivity cells**

- satisfies broad range of applications.

■ **Comprehensive diagnostics facility with in-built software protection**

- ensures security and confidence in operation.

■ **Universal transmitter**

- covers applications from ultra-pure water to liquids with conductivity up to 10,000 μ S/cm.

■ **Ultra-pure water temperature compensation**

- ensures accuracy at conductivities below 1 μ S/cm.

■ **Compact transmitter enclosure**

- saves space, reduces installation cost.

■ **IP66/NEMA4X**

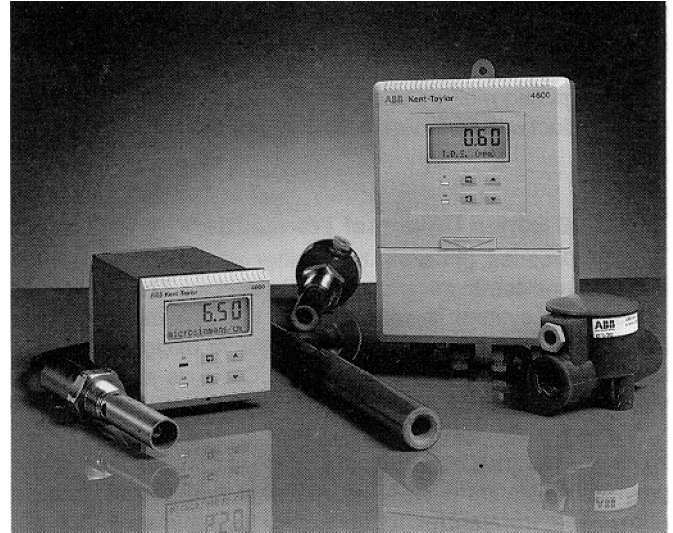
- reliable operation in demanding environments.

■ **Guaranteed cell constant**

- ensures high accuracy and total interchangeability.

■ **English, French, German and Spanish software**

- simple, user-selection of display language.



A high specification conductivity analyzer offering advanced functionality, simple operation and reliability in harsh environments.

ABB Instrumentation

ABB

The 4620 Series conductivity analyzer comprises a transmitter and a sensing system to accurately, and reliably, measure and transmit the conductivity value in a range of water monitoring applications.

To complement the well proven design and unrivalled accuracy and reliability in service of the conductivity cells 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.

The 4620 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 sensor system can be selected to suit a specific application from an extensive range of well proven conductivity cells. All cells have guaranteed ±1% cell constant and Pt100 temperature compensation elements. A variety of mounting configurations are offered to meet most industrial applications.

The cells are constructed in either epoxy resin with annular carbon electrodes, or stainless steel and are resistant to polarisation, requiring virtually no maintenance.

The design and method of construction has resulted in a world class product with an enviable reputation for long life, 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 conductivity value in one of seven programmable units of measure.

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 PC-30 supervisory system.

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

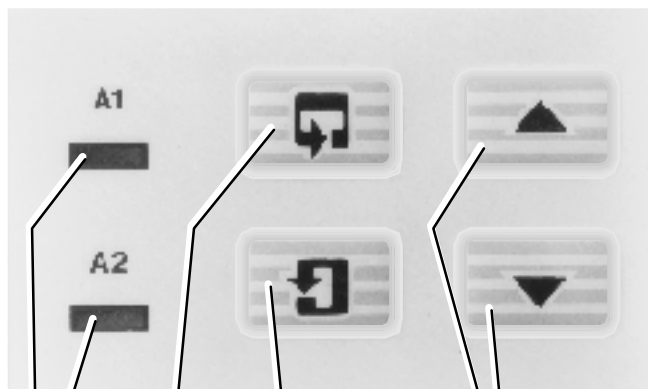
User Friendly Operation

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.

Instrument Key Pads



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

Transmitter

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 0.5 μ S/cm up to 10,000 μ S/cm (with various cell constants).

Scaling

μ S/cm, μ S/m, mS/cm, mS/m, Mohm-cm, TDS and p.p.m.

Accuracy

$\pm 1.0\%$ f.s.d., ± 1 digit.

Linearity

$\pm 0.1\%$ f.s.d.

Temperature measuring range:

-10°C to 110°C (14° to 230°F).

Temperature compensation:

-10°C to 110°C (14° to 230°F) automatic.

Temperature coefficient

Programmable 0 to 3.0%/°C (0 to 1.5%/°F).

Temperature sensor

Pt100 resistance thermometer.

Reference temperature

20°C (68°F) or 25°C (77°F) programmable.

Environmental Data

Operating temperature limits

-20° to 55°C (-4° to 131°F).

Storage temperature limits

-25° to 55°C (-13° to 131°F).

Operating humidity limits

Up to 95% RH non-condensing.

Power Supply

Voltage requirements

100 to 130V, 200 to 260V, 50/60Hz.

Power consumption

< 6VA a.c.

Error due to power supply variation

Less than 0.1% 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.

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. $\pm 0.5\%$ reading.

Resolution

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

Max. load resistance

750 ohm (20mA max.).

Serial communication

RS485 (optional extra).

MECHANICAL DATA

Mounting:

Model 4620 wall mounting, Model 4625 panel mounting.

Protection:

Model 4620 - IP66, Model 4625 - IP66 front.

Dimensions:

Model 4620 - 160mm (6.30in) wide x 214mm (8.43in) high x 68mm (2.68in) deep.

Model 4625 - 96mm (3.78in) x 96mm (3.78in) x 191mm (7.52in).

Panel cut-out: $92_{-0}^{+0.8}$ mm x $92_{-0}^{+0.8}$ mm

$(3.62_{-0}^{+0.03}$ in x $3.62_{-0}^{+0.03}$ in).

Weight:

Model 4620 - 2kg (4 $\frac{1}{2}$ lb).

Model 4625 - 1.5kg (3 $\frac{1}{4}$ lb).

Select the required model number from those listed below.

<p>DIP CELL MODEL 2025</p> <p>Dims. in mm (in)</p> <p>Cable Length 4.6 m (15ft) fitted with bulkhead plug and socket</p> <p>Retaining O Rings</p> <p>Adjustable Mounting Bracket</p> <p>740 (29)</p> <p>103 (4)</p> <p>68 (2.6)</p> <p>(Model 2025-40 Series)</p> <p>27 (1.06) dia.</p> <p>(Model 2025-60 Series)</p>	<p>Specifications</p> <p>Cell constant available: 0.1 or 1.0</p> <p>Type: Dip type</p> <p>Cell body: Loaded epoxy resin</p> <p>Electrode matl.: Carbon</p> <p>Fixing detail: Adjustable with bracket provided</p> <p>Maximum press. bar (psi): N/A</p> <p>Maximum temp.: 90°C (194°F)</p>
<p>FLOW CELL MODEL 2045</p> <p>Quick release cover on watertight terminal box</p> <p>81 (3.18)</p> <p>36 (1.4)</p> <p>25 (1)</p> <p>124 (4.88)</p> <p>1/2in BSP Parallel or NPT Thread</p> <p>2 Fixing Screws 44 (1.73) Between Centres</p> <p>Dims. in mm (in)</p>	<p>Specifications</p> <p>Cell constant available: 0.1 or 1.0</p> <p>Type: Flow-line</p> <p>Cell body: Loaded epoxy resin</p> <p>Electrode matl.: Carbon</p> <p>Fixing detail: Threaded 1/2in BSP parallel or NPT</p> <p>Maximum press. bar (psi): 6.6 (100)</p> <p>Maximum temp.: 100°C (212°F)</p>
<p>SCREW-IN MODEL 2077</p> <p>68 (2.67)</p> <p>70 (2.75)</p> <p>22 (0.86)</p> <p>122 (4.8) (2077-600 Series)</p> <p>87 (3.4) (2077-400 Series)</p> <p>1in BSP or NPT Thread</p> <p>27 (1.06) dia.</p> <p>Dims. in mm (in)</p>	<p>Specifications</p> <p>Cell constant available: 0.1 or 1.0</p> <p>Type: Screw type</p> <p>Cell body: Loaded epoxy resin</p> <p>Electrode matl.: Carbon</p> <p>Fixing detail: Threaded 1in BSP parallel or NPT</p> <p>Maximum press. bar (psi): 6.6 (100)</p> <p>Maximum temp.: 100°C (212°F).</p>

SCREW-IN CELL MODEL 2078

Model	A mm (in)	B mm (in)
2078-4	184 (7.24)	102 (4.0)
2078-3	184 (7.24)	102 (4.0)

Specifications

Cell constant available: 0.05 or 0.1

Type: Screw-in

Cell body: 316 St. Steel

Electrode matl.: 316 St. Steel

Fixing detail: Threaded 3/4in BSP parallel or NPT

Maximum press. bar (psi): 10.5 (150)

Maximum temp.: 110°C (230°F)

WITHDRAWABLE CELL – MODEL 2085

Specifications

Cell constant available: 0.05 or 0.1

Type: Withdrawable

Cell body: Naval brass and 316 St. steel

Electrode matl.: 316 St. steel

Fixing detail: Used with Model 2089 valve assembly 1 1/2BSP parallel or NPT

Maximum press. bar (psi): 10.5 (150)

Maximum temp.: 110°C (230°F)

Note.

To select the most suitable cell constant for the desired working range use the following criteria:

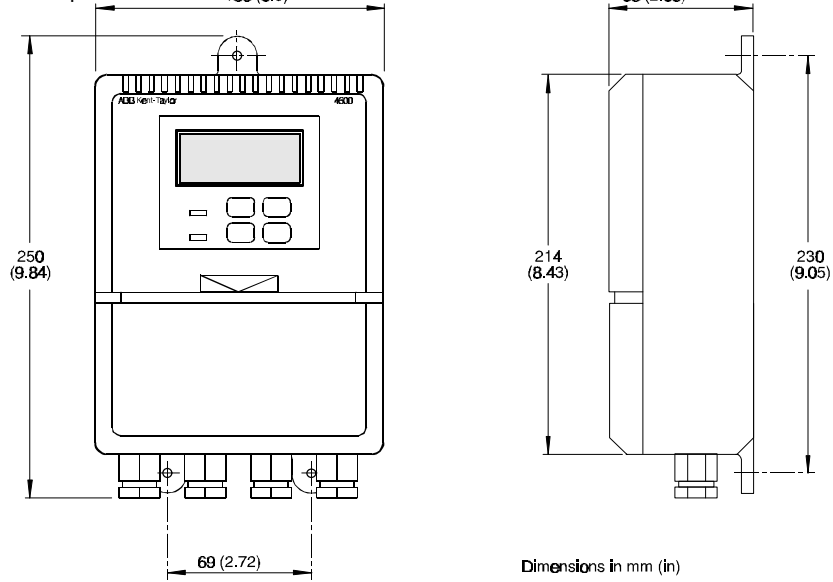
Minimum range 10 x the cell constant

Maximum range 10,000 x the cell constant

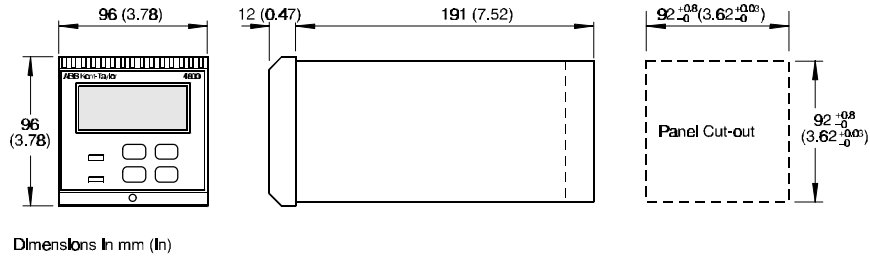
e.g. cell constant $k = 0.1$ Minimum range = $10 \times 0.1 = 1.00\mu\text{S/cm}$

Maximum range = $10,000 \times 0.1 = 1000\mu\text{S/cm}$

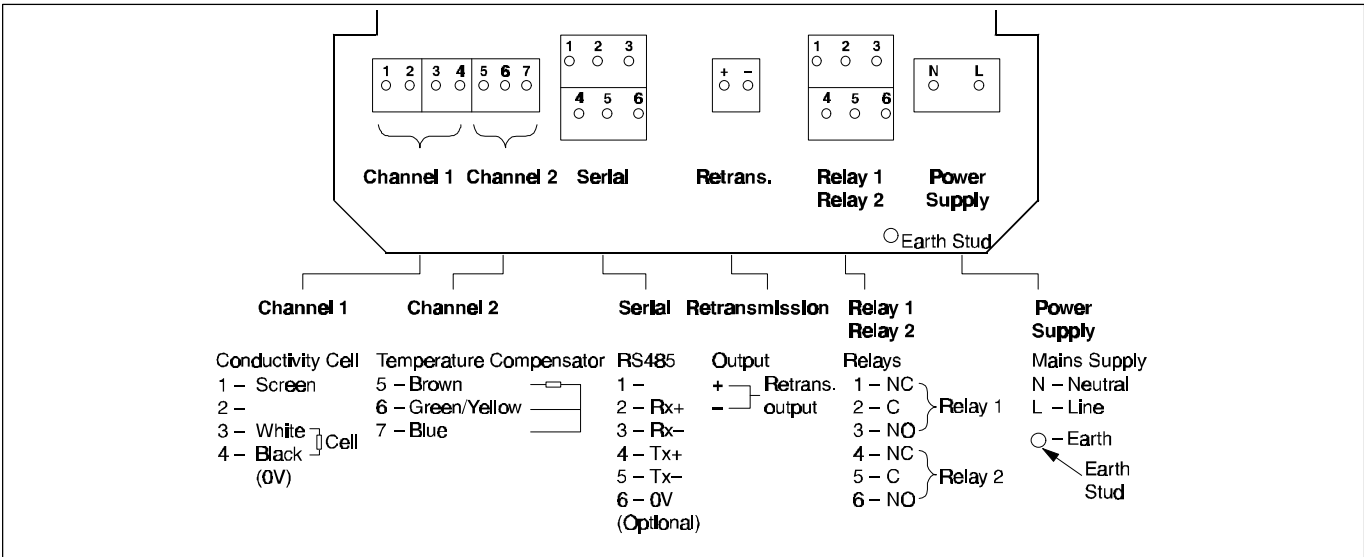
For ultrapure water applications (less than $1.00\mu\text{S/cm}$) a cell constant of 0.05 must be used.



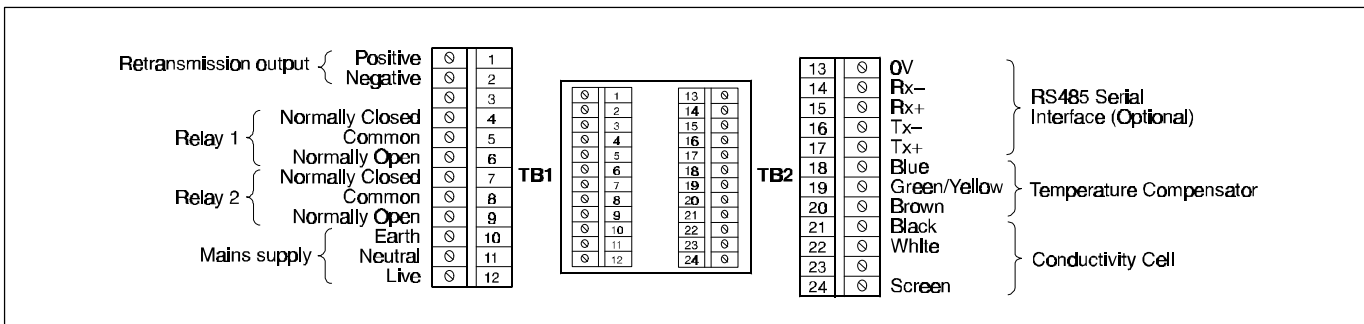
Model 4625



Outline Dimensions



Connections for Wall Mount Model 4620



Connections for Panel Mount Model 4625

ORDERING INFORMATION

SUNSTAR传感与控制 <http://www.sensor-ic.com/> TEL: 0755-83376549 FAX: 0755-83376182E-MAIL: szss20@163.com
To order a 4600 Conductivity Analyzer select the Transmitter, Sensing System and Connecting Cables from the following information.

Code No. Description

4600 SERIES CONDUCTIVITY - TRANSMITTERS

BASE NUMBER - 1st through 5th Characters
4620- Wall Mount Conductivity Transmitter
4625- Panel Mount Conductivity Transmitter

OPTIONS - 6st through 8th Characters
500 Standard Configuration
700 with RS485 ModBus Communications
800 with Second Current Output

4600 SERIES CONDUCTIVITY - SENSORS

Dip Cell- Model 2025
2025- **BASE NUMBER - 1st thru 5th characters**

CELL CONSTANT - 6th character
4 K=0.1
6 K=1.0
0 **UNUSED - 7th character**

CONDUCTIVITY CONSTANT - 8th character
5 Temperature compensated Pt100 - epoxy resin stem

2025-605 SAMPLE CATALOG NUMBER

Flow Cell - Model 2045
2045- **BASE NUMBER - 1st thru 5th characters**

CELL CONSTANT - 6th character
4 K=0.1
6 K=1.0

CONNECTION - 7th character
0 1/2 in. BSP thread
8 1/2 in. NPT thread

CONDUCTIVITY CONSTANT - 8th character
5 Temperature compensated Pt100

2045-685 SAMPLE CATALOG NUMBER

Screw-In Cell - Model 2077
2077- **BASE NUMBER - 1st thru 5th characters**

CELL CONSTANT - 6th character
4 K=0.1
6 K=1.0

CONNECTION - 7th character
0 1 in. BSP thread
8 1 in. NPT thread

CONDUCTIVITY CONSTANT - 8th character
5 Temperature compensated Pt100

2077-405 SAMPLE CATALOG NUMBER

ORDERING INFORMATION

Code No.	Description
	Screw-In Cell - Model 2078
2078-	BASE NUMBER - 1st thru 5th characters
	CELL CONSTANT - 6th character
3	K=0.05
4	K=0.1
	CONNECTION - 7th character
0	3/4 in. BSP thread
8	3/4 in. NPT thread
	CONDUCTIVITY CONSTANT - 8th character
5	Temperature compensated Pt100
	2078-405 SAMPLE CATALOG NUMBER
	Withdrawable Cell - Model 2085
2085-	BASE NUMBER - 1st thru 5th characters
	CELL CONSTANT - 6th character
3	K=0.05
4	K=0.1
0	UNUSED - 7th character
	CONDUCTIVITY CONSTANT - 8th character
5	Temperature compensated Pt100
	2085-305 SAMPLE CATALOG NUMBER
	Withdrawable Valve Assembly - Model 2089
2089-	BASE NUMBER - 1st thru 5th characters
	Withdrawable Valve Assembly for 2085, Stainless steel
	Connection - 6th character
8	1-1/2 in. BSP threaded
9	1-1/2 in. NPT threaded
00	UNUSED - 7th and 8th characters
	2089-900 SAMPLE CATALOG NUMBER

ACCESSORIES

155S997	Pipe Mount Bracket for 4600 Series Transmitter
0233-811	*Conductivity Cell Connecting Cable, 2-Core (Signal)
0233-819	*Conductivity Cell Connecting Cable, 3-Core, (Temperature Compensating)
	* Both these cables are required.



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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