

# Conductivity meter

## Instruction manual



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## 1. Introduction

Conductivity monitor DDG-403B provides advanced measurement and temperature compensation via MCU, with large LCD display. It is widely used in electronics, chemistry, pharmaceutical, mechanical and electrical, nuclear energy and water etc industry.

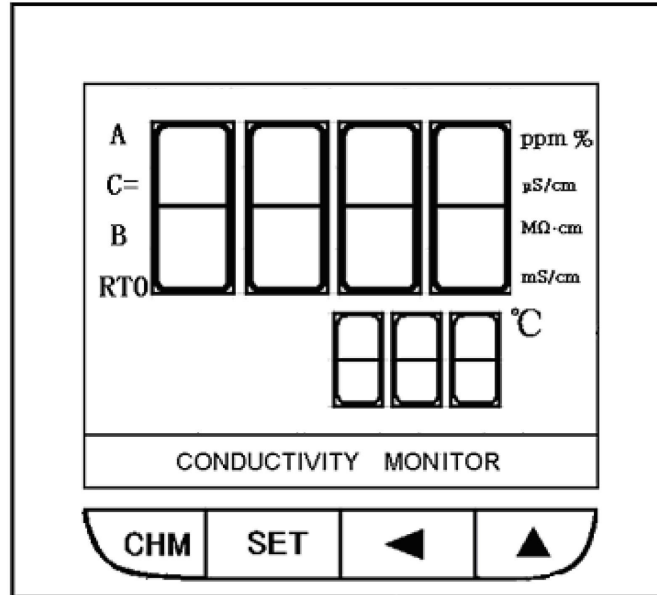
## 2. Features

- 1) Automatically reversible measurement range
- 2) Automatically adjustment to zero
- 3) TDS (ppm) display
- 4) Simultaneous viewing of conductivity and temperature values
- 5) Alarm output according to maximum conductivity and TDS value
- 6) Data output via the interface RS-232C
- 7) 220 VAC or 24 VDC powered

## 3. Technical Specifications

- 1) Measurement range: automatic measurement range at 0-20.00 $\mu$ S/cm, 200.0 $\mu$ S/cm, 0.5-2000 $\mu$ S/cm, 0-1000ppm can be displayed.
- 2) Temperature compensation: automatic temperature compensation, compensation range 0-60 $^{\circ}$ C, compensation point 25 $^{\circ}$ C, compensation component NTC10K $\Omega$
- 3) Display: 58 $\times$ 42 large LCD screen, 4 digits 0.56" for conductivity display, 3 digits 0.36" for temperature display
- 4) Accuracy:  $\leq\pm 2\%$  (F·S)
- 5) Electrode: 1.00cm-1 plastic platinum holder, 4' pipe-thread, cable length 5m
- 6) Alarm output: available alarm setting for conductivity or TDS. When the measurement reading exceeds the setting value, a relay will be functioned.
- 7) Current Output: DC 4-20mA output, optional according to user's requirement
- 8) RS-232C interface: available RS-232C access to devices complied with the interface such as computers, printers (DY-301B) to print out measurement data.
- 9) Real time clock: real time clock function supports the continuously changing printing time to be recorded.
- 10) Power supply: 220 VAC or 24 VDC, to be confirmed by customers when replace orders
- 11) Dimensions: frame dimension: 96 $\times$ 96 (mm), panel dimension: 91 $\times$ 91 (mm), depth: 95 (mm)
- 12) Testing standard: Q/TCDP03-2000

## 4. Front Panel



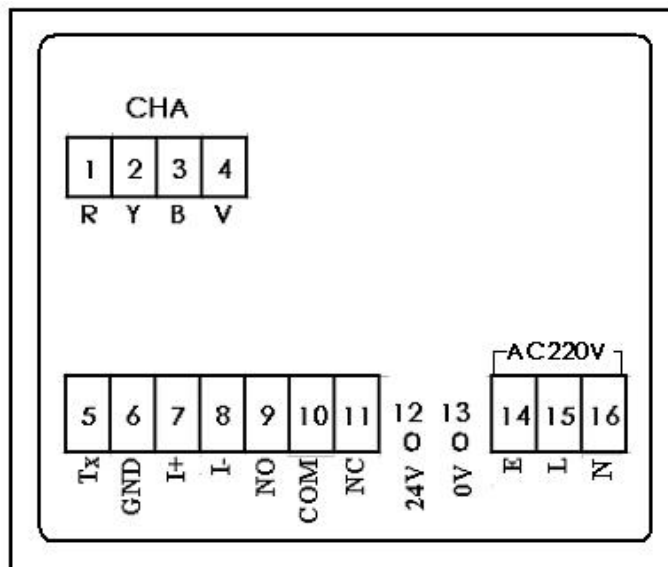
### Description:

Display Window	Description	Display Window	Description
Date	Year-Month-Day	A	Conductivity reading
Time	Hour-Minute	C=	Electrode constant reading
Save	Factory setting based	B	TDS
Reset at zero	Factory setting based	ppm	Unit of TDS
Exceed	Alarm Symbol	µS/cm	Unit of conductivity
4mA	Display "4mA"	Maximum value to alarm	Setting of maximum value to alarm
20mA	Display "20mA"	Minimum vlaue to alarm	Setting of minimum value to alarm
Electrode coefficient	Display the electrode coefficient	Temperature compensation	Compensation coefficient

## 5. Diagram of Wire Connection on Back Panel

### **Warning:**

For the operator's safety, please switch off the power during electrical connection.



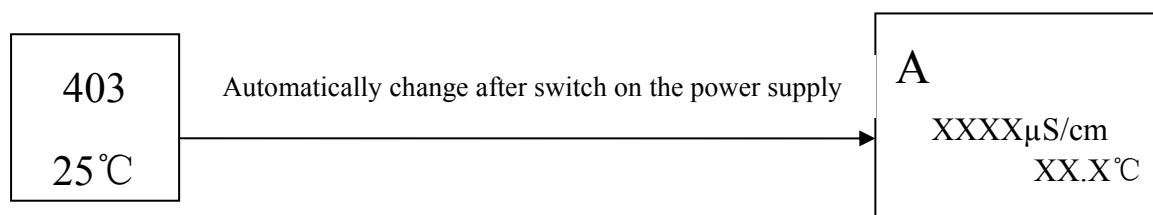
### **Description:**

Function	Symbol	Serial No.	Description			
Electrode Wiring	CHA	1-4	1	2	3	4
			R (Red)	Y (Yellow)	B (Blue)	V (Violet)
RS-232	Tx, GND	5, 6	5		6	
			Tx		GND	
4-20mA output	I+, I-	7, 8	7		8	
			+4-20mA		-mA	
Alarm output	NO, COM, NC	9-11	7	10	11	
			NO	COM	NC	
DC 24V input	DC 24V	12, 13	12		13	
			24V+		0V	
AC 220V input ww	AC 220V	14-16	14	15	16	
			E (Ground)	L (220V)	N (0V)	

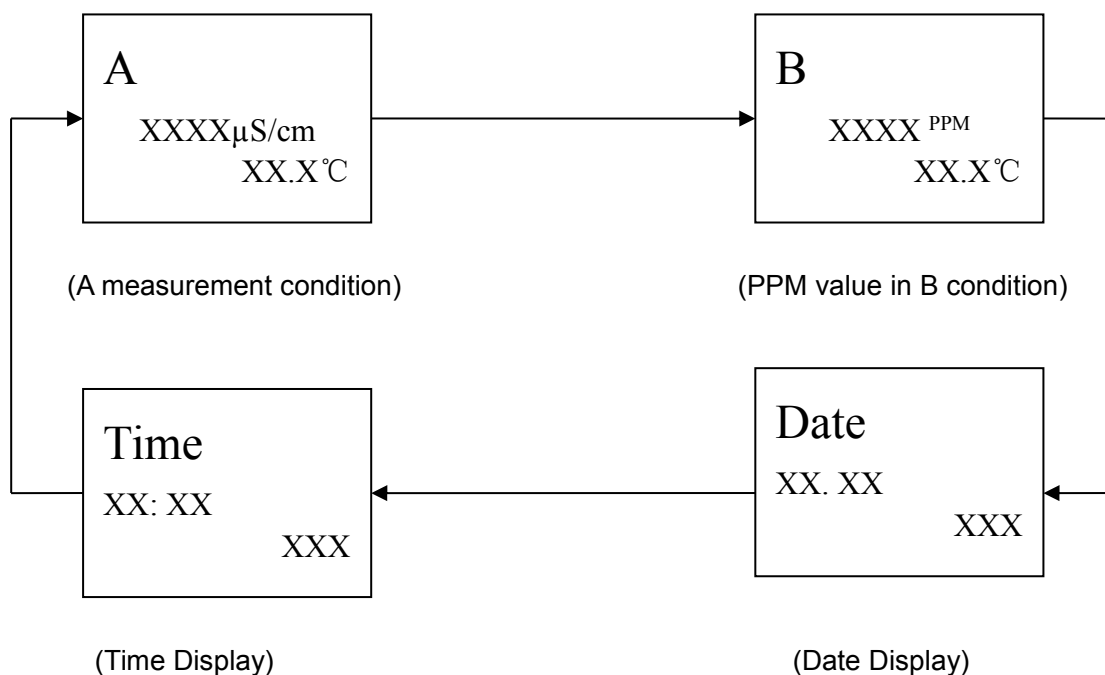
**NOTE: Power supply of terminals with serial No. 12-16 shall be chosen according to equipped devices.**

## 6. Operating Instruction

- 1) After correctly connecting the electrode wire (refer to actual color of wire), power supply wire, input wire and output wire according to the diagram of wire connection on back panel, connect the power supply.
- 2) Optional display: Switch on the power supply, the meter is now ready for measurement (A or B measurement condition will be displayed)

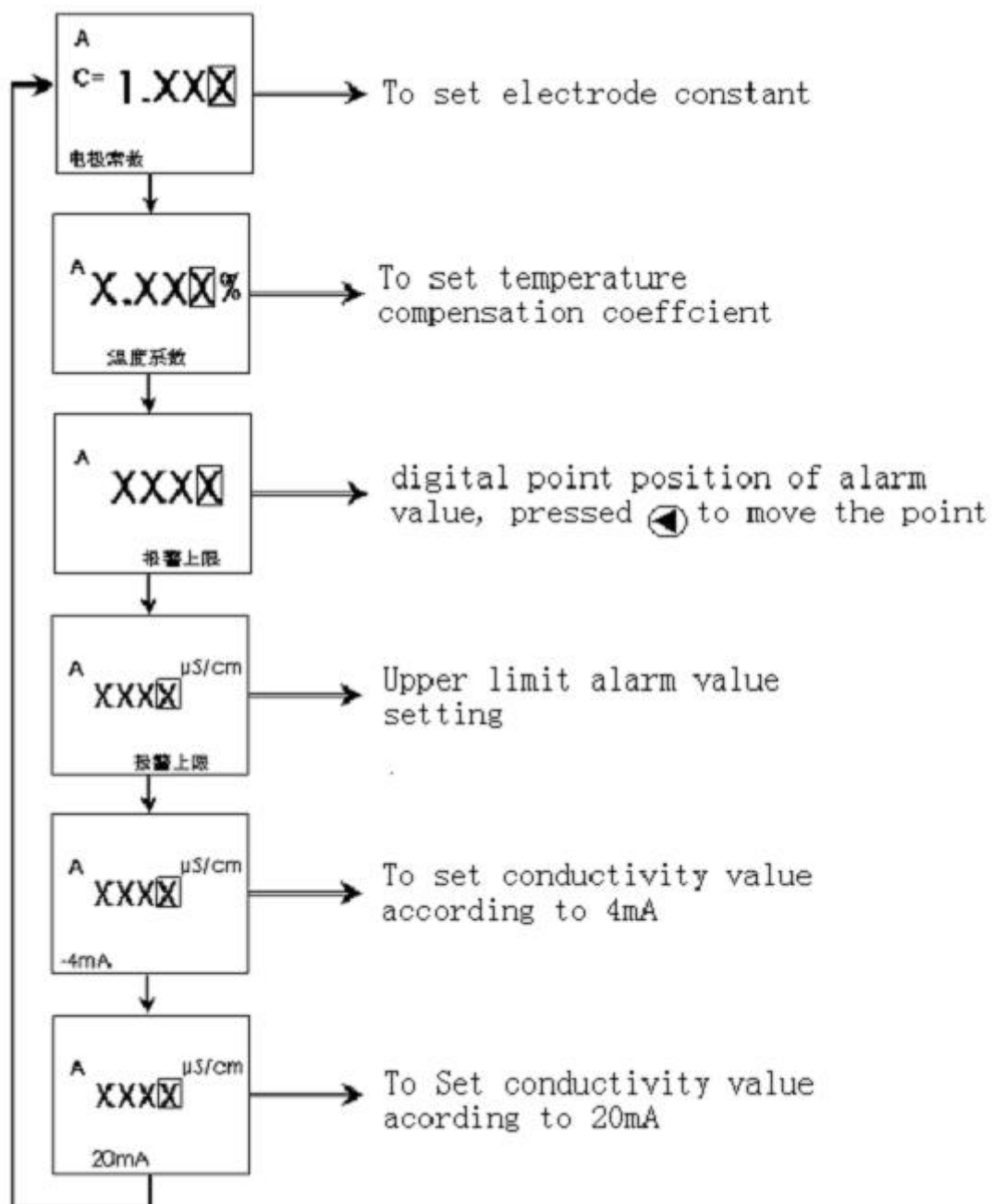


Press the key “CHM”, the four windows below listed can be displayed separately according to user’s requirement.



### 3) Parameters Setting

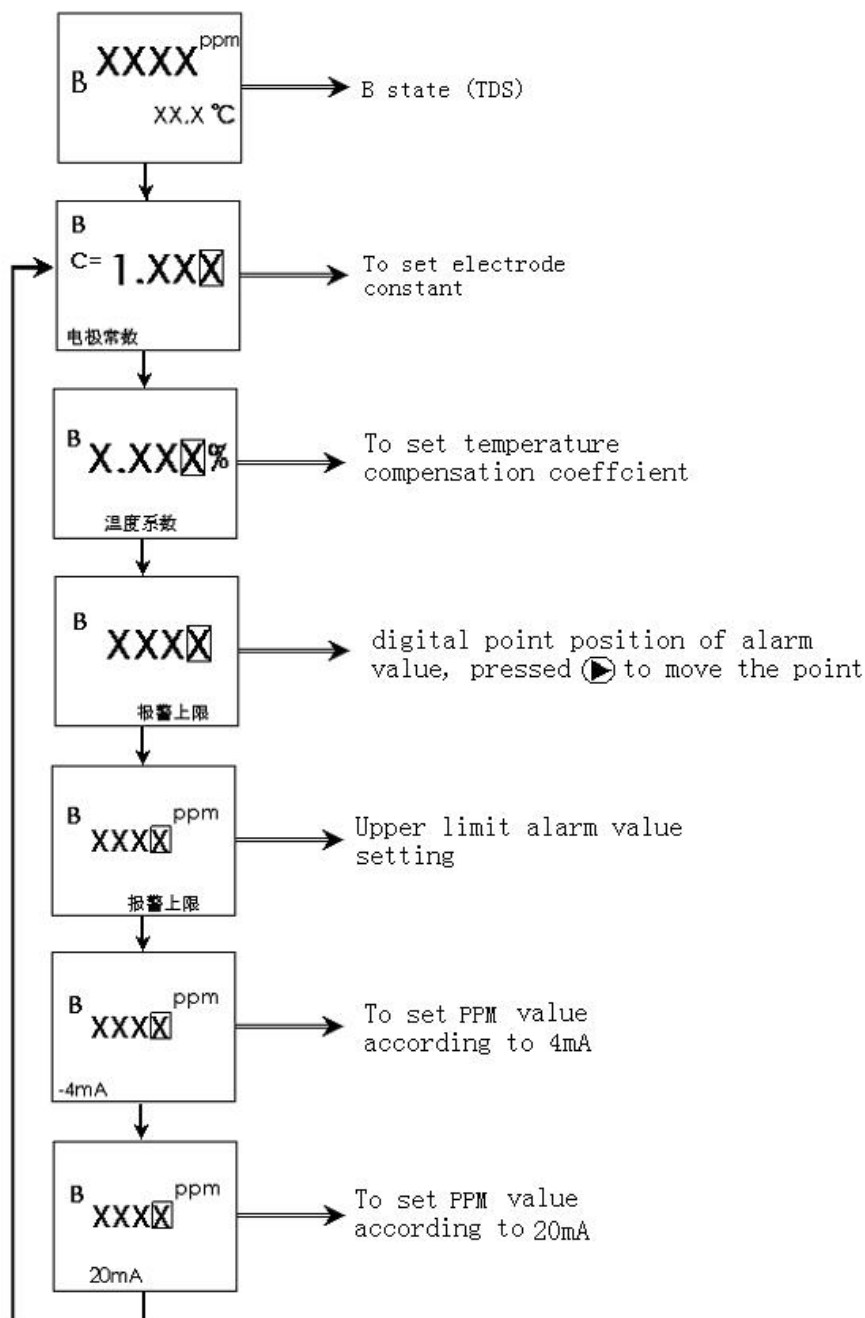
3.1 Parameters Setting in A condition (for conductivity reading). Press the key "SET" until the following parameter setting which you want shown.



Electrode Constant Setting

### 3.2 Parameter Setting in B condition

Press the key "SET" until the following parameter setting which you want shown.



**NOTE:** ☆ During the setting of the above mentioned parameters, press the key “◀” to flash the position which need to be modified, then press the key “▲” to choose the digit. (0, 1, 2, ……9 will be displayed separately)

☆ After the setting of the above mentioned parameters, press “CHM”, B condition measurement is back to ready.

#### 4) Alarm output

4.1 The alarm output is only available for one of the A or B condition, that means it



cannot work simultaneously in A or B condition.

4.2 If press "▲" in A condition and "maximum value for alarm" shown on the LCD screen, the alarm output is available in A condition, or otherwise it will automatically be available in B condition.

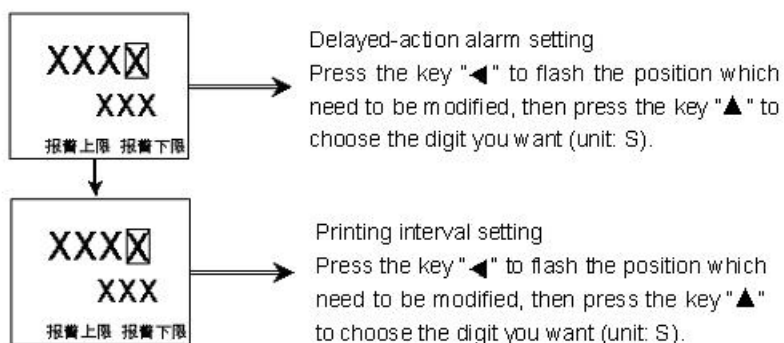
5) 4-20mA

5.1 Optional 4-20mA output for A and B condition

5.2 If press "◀" in A or B condition and "4mA, 20mA" shown on the LCD screen, 4-20mA output is available, or otherwise it will automatically be available in B condition.

6) Delayed-action alarm and printing interval setting

Press "CHM" and "SET" simultaneously in A or B condition.



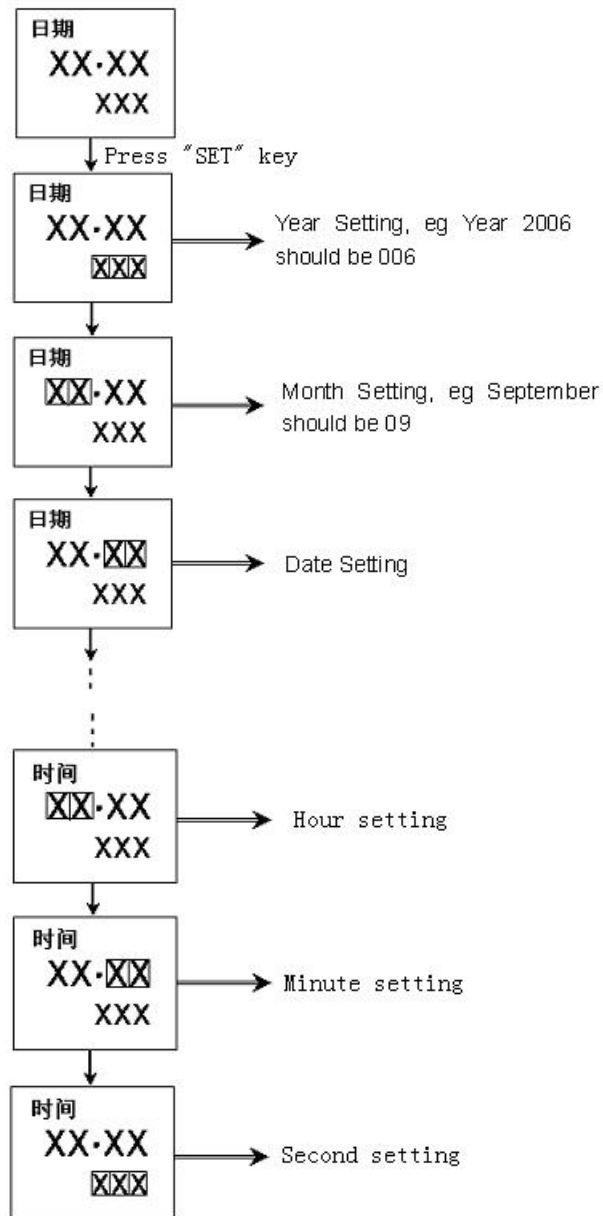
Press "CHM" again, the setting is saved and finished. The meter is now ready for measurement.

**NOTE:**

- ☆ Delayed-action alarm: If the reading exceeds the setting value during measurement, alarm time will be displayed in advance.
- ☆ Printing interval: DY-301B print out the conductivity value at the set time via the interface RS-232C.

7) Date and time setting

Press "CHM", date setting will be display:



Press "CHM" again, the setting for date and time is saved and finished, the back to Date Setting Page and Press "CHM", the meter is now ready for measurement.

## 7. Other remarks

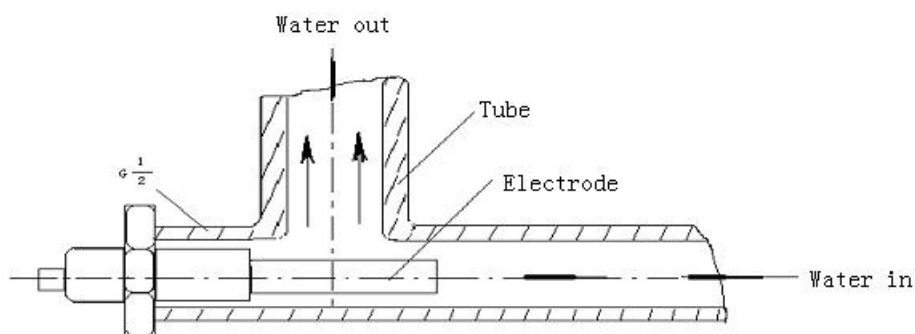
- 1) There are A and B two conditions. Users can choose any one condition and it will be displayed after reswitch-on.
- 2) When parameter setting is successfully saved, it will be remained even if the meter is switched off or switched on again.
- 3) If the measurement reading exceeds the setting value, "Exceed" will be displayed and the audio signal can be heard.
- 4) If the electrode is not connected or its temperature signal is not input to the meter, the temperature will be concerned automatically as 25°C and the conductivity is non-compensation.

- 5) When the measurement reading exceeds the maximum value of the measurement range, besides the maximum values displayed, A or B will be flashed.

## 8. Attention

- 1) The cable for testing the electrode should be special cable. If it is longer than factory length (5m), please confirm the length when place the order. For a good measurement accuracy, please do not use special cable.
- 2) The measurement signal for conductivity is a weak signal. In order to avoid interference or break the meter, the electrode cable should not be bound with any other cables.
- 3) The meter is sensitive, so right connection is the must.

## 9. Electrode Installation (refer to below illustration)



## 10. What included

1	Conductivity Monitor	1
2	Electrode	1
3	Frame for Installation	1
4	Quality Certificate	1
5	Operating Instruction	1
6	Software Disk	1 (option)
7	Cable with Interface RS-232C	1 (option)