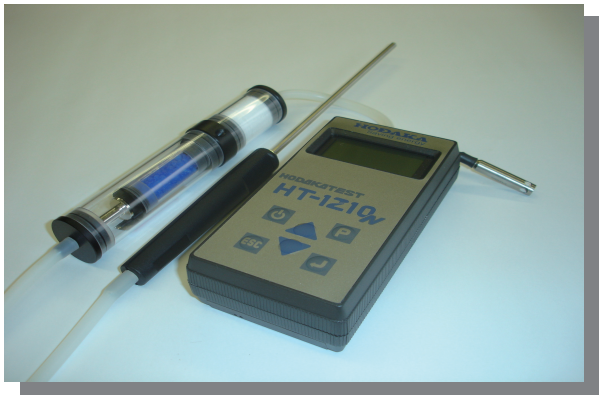
Flue gas analyzer HT-1210N

Operating Manual



HODAKA
Saving energy

2.Introduction

2.1 The flue gas analyzer HT-1210N

The Flue Gas analyzer HT-1210N is used for the following purposes:

- Precise control and adjustment measurement for gas and oil firings
- Inspection of gas firing locations
- Control of modern combustion boilers

2.2 Important Instructions regarding the Operating Manual

The operational manual is an important part of the scope of supply and assures not only the correct operation and use of the measuring device,but also the safety of the user and the environment.
Therefore,every user is obliged to read carefully the operation manual and to strictly observe all instructions regarding safety.
Additional instructions in other chapters are marked through **Caution** signs.

3.Safety Regulations

The following Safety instructions have to be strictly observed.
They are an essential and indispensable part of the user documentation.
Not observing can mean loss of warranty claims.

3.1 Safety Instruction

- The device HT-1210N is only to be used for its indicated purpose:

the measurement of flue gases, of combustion air and gas temperature.

3.2 Specific Safety Instructions

- The device is only to be used with the supplied AC adapter (HT1301) for

power supply.
Should the battery catch fire due to an operating error or a technical defect, the fire should only be extinguished with the corresponding fire extinguishing equipment.

- The metal tube of the probe as well as any other metal parts / accessories are

not to be used as electric conductors.

- The device is not to be used in and under water.
- The device is not to be placed near or directly at open fire or heat.
- The indicated range of temperature of the probe is not to be exceeded,

as the probe, temperature sensory mechanism and sensor could be destroyed.

- Plugs of the electronic measuring device have to be avoided.
- **Caution**: Moisture, being evacuated out of the condensate trap can be

slightly acidic.

- In case of skin contact **IMMEDIATELY**: clean respective parts of the body!

Avoid contact of eyes with liquid!

- **After measurement, vent the device with fresh air** and see to it that the probe is

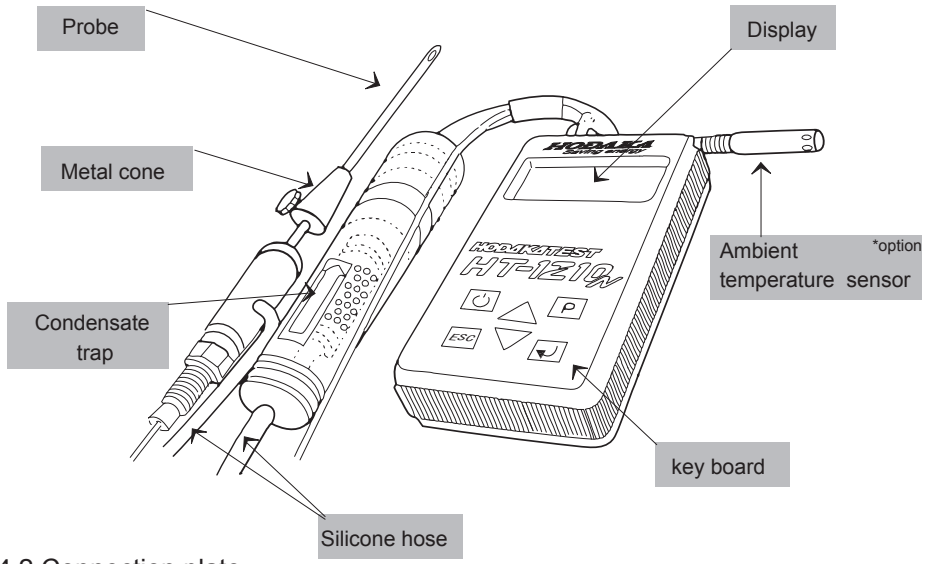
getting cold.As long as it is hot, the tube of the probe could burn persons or cause fire damages on inflammable underground.

- The exhalations of alcoholic combinations(f.ex.attenuation, petrol, spirit,

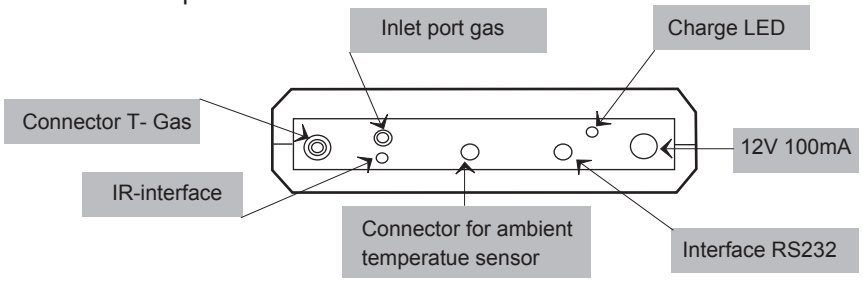
varnish.....) may be damage the sensor of the analyzer. Therefore it' s forbidden to preserve or use these fluids near by the device.

4.Device Illustrations

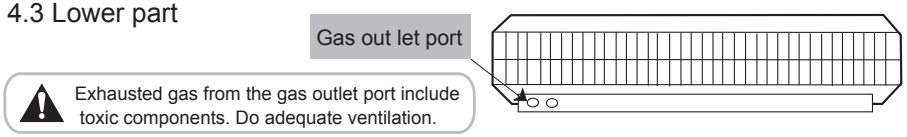
4.1 Perspective View



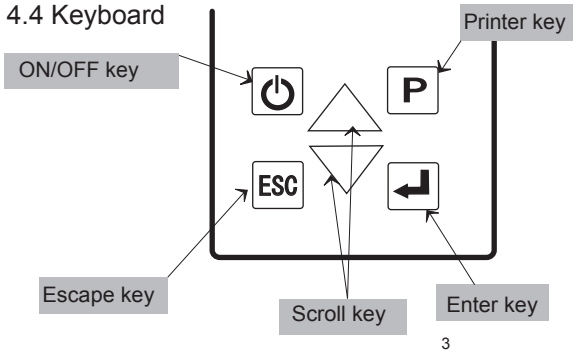
4.2 Connection plate



4.3 Lower part



4.4 Keyboard



: Switch device on/off

:Start the function selected by the cursor

: change value, move cursor or choose a selection

P : activate print-out

ESC : end or back to the previous menu

5. Power supply

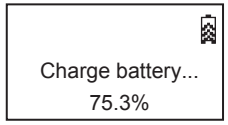
HT-1210N can be operated by:

1. HT-internal battery(standard scope of supply)
2. HT-battery charge (standard scope of supply) 100V / 12 Vdc / 100mA

Measurements from line power : Use the HT-1210N only with the HT power supply 100v / 12Vdc / 100mA

5.1 Prepare measurement

The HT-battery charger can be connected to the HT-1210N.



At the connection plate the chargeing-LED lights up.
On the display the current loading-state of the battery is displayed.
If the battey is fully charged, the HT-1210N changes to trickle charge and the LED blinks approx. every 16 seconds.
The charging time for unloaded battery is approx.12 hours.

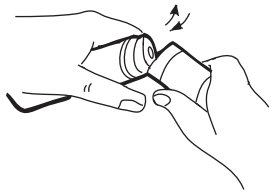
- Attention: No battery charge if the unit is switched ON.(measurement)
- For battery charge, the device has to be switched OFF and the HT battery charger has to be connected to the HT-1210N and the mains power supply.
- Also in case of non-use charge battery once in the month.

Operating temperature (0℃ to 45 ℃)

Condensate trap

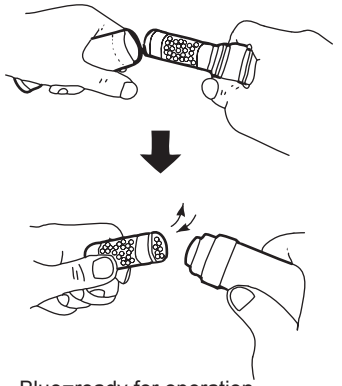
- Mount condensate trap with filter.
- Please check, if the condensate trap is empty and the filter is still white.
- Check all plugged and screwed connections regarding their tight and correct fit. Check tightness of all tubes,tube connections and condensate trap(from probe tip to gas connection on device).

Exchange filter



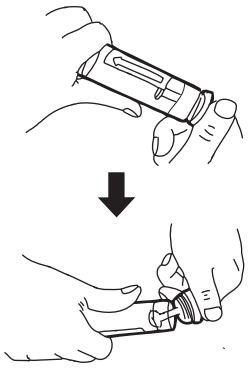
White=ready for operation
Dark=replacement is necessary

Exchange silica gel



Blue=ready for operation
Pink=replacement is necessary

Condensate cleaning



Remove the cover then clean the condensate in the trap

5.2 Interface RS 232

Switch off unit before connecting RS 232 cable to PC!

6.Operating

6.1 Switch ON the unit

By pressing the ⏻ -key the HT-1210N will be switched ON.

```
HODAKA
HT-1210N
```

Selftest follws.

```
HT-1210N
-Selftest-
```

```
Zero setting
has to be
determined in
ambient air!
```

```
Zero setting
please wait
```

After Zero setting the unit entries the main menu.

6.2 Gas measurement

```
Gas measurement
CO peak/average
Zero setting
Extension menu
```

The residual battery capacity is displayed in the right corner of the LCD.

↵ :Start measurement

```
T-Gas      120.1℃
T-Amb       24.3℃
CO           4.9%
```

6.2.1 CO Peak/ Average

```
Gas measurement
CO peak/average
Zero setting
Extension menu
```

▲ or ▼ :Select the function

↵ :Start the function

```
Measurement  time
      40
```

▲ or ▼ : Measurement time can be set up between 35 sec. to 600sec.

Factory initial measurement time is 40sec.


```
T-Gas      24.8 ℃
T-Amb      25.5 ℃
CO          254ppm
```

↵ :Pump on and start measurement.
After measurement time, pump off and beep for 2 sec.

▲ or ▼

```
avelage
```

↵ :Print/store/abort page

↓ auto

```
T-Gas      24.8℃
T-Amb      25.5℃
CO          224ppm
```

▲ or ▼

```
Peak
```

↓ auto

```
T-Gas      38.5℃
T-Amb      26.7℃
CO          254ppm
```

ESC :Back to the main menu

The functions "Input of T-Boiler" and "Input Soot number" has to be activate in the Extension Menu / Device settings / Parameter / Print / store boiler temp and print / store soot number! (see chapter)

```
T-Boiler/Soot

T-Boiler    95℃
```

▲ or ▼ :Input Boiler temperature in 5 ℃ steps

ESC :Back to measument

▲ or ▼ :Input of T-boiler and Soot number by means of ▲ or ▼
Note: the input soot munber and drivate is valid only at oil as fuel.

```
Soot1:     2
Soot2:     3
Soot3:     1
oily       nagative
```

▲ or ▼ : Input soot number in 1 steps

↵ :Line transfer

ESC (in line 1) : Back to input T-Boiler

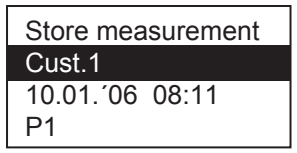
↵ (in line 4) :Storage

P :Print-out

:Strage

ESC :Back to main menu

The last selected strage space is selected.

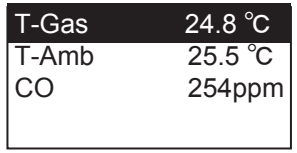


▲or▼ :Selection of storage space

:Storage

ESC :Back to measurement

If the selected storage place is free, the display announce: “free”
Adjustment of the measurement variables:
Press ▲ and ▼ for 3 seconds simultaneous, until beeper is heated

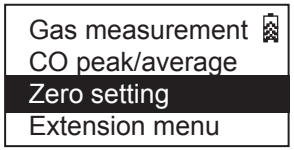


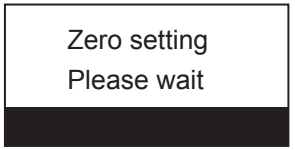
▲or▼ :Move cursor

or ESC :Change fuel

▲ and ▼ :Back to measurement and leave measurement configuration

6.3 Zero setting

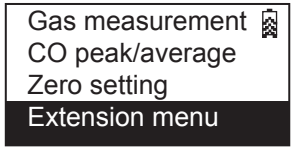




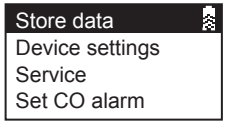
:Zero setting

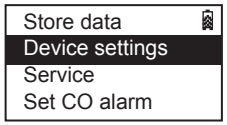
Zero setting has be determined in ambient air!

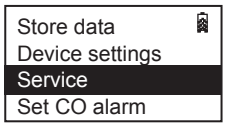
6.4 Extension menu



▲or▼ :Select the function



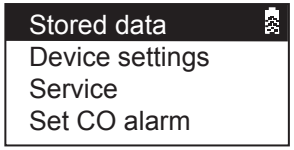


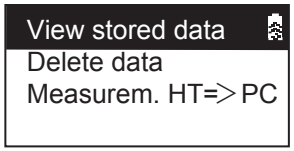


: Start the function

6.4.1 Stored data

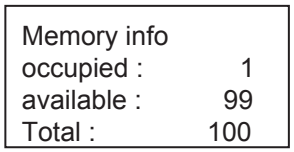
6.4.1.1 View stored date





▲or▼ : Select the function

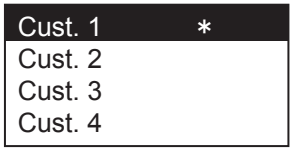
: Start the function



▲or▼ : Selection of storage

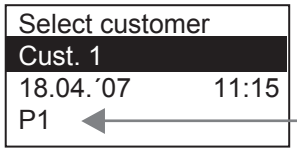
:Confirmation

The storage places marked with * are occupied



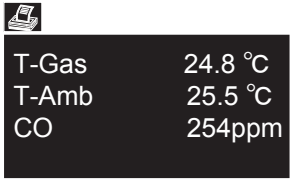
▲or▼ :Select customer

:Activate storage place



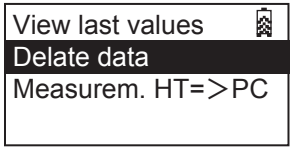
:Go to next page

P1: the date at the gas measurement window
P2: the date at the CO peak/ average window



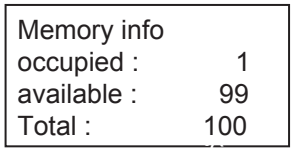
:Back to Print/Store/Abort page

6.4.1.2 Delate data

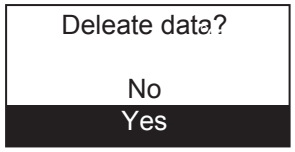


▲or▼: Select the function

↵ : Start the function



Current use of storage

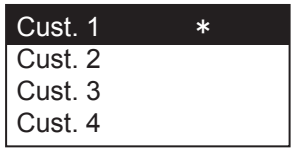


▲or▼ : Select the function

↵ : Start the function

▲or▼: Select the function

↵ : Start the function

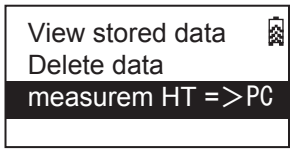


▲or▼: Select the function

↵ : Start the function

With selection of “ALL” the complete memory is deleted

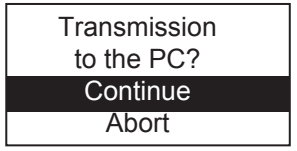
6.4.1.3 Measurement HT-1210N to PC



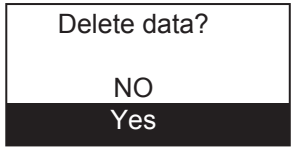
▲or ▼ :Select the function

↵ :Start the function

↵ : Number of date to be transmitted

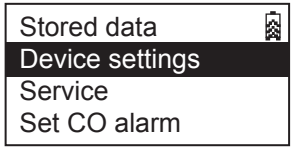


Activate PC-program for transmission



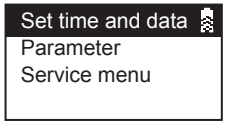
After occurred data transfer appears:
Memories delete No or Yes

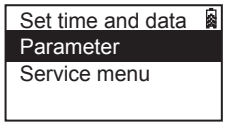
6.4.2 Device settings

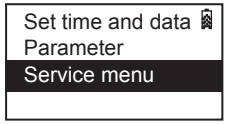


▲or ▼ : Select the function

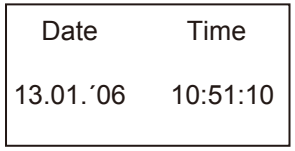
↵ : Start the function



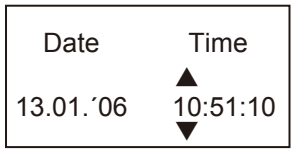




6.4.2.1 Date / Time



:The time stored in the HT-1210N and the date is displayed.

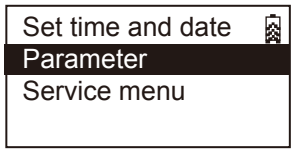


:Activate cursor and placing through repeated pressing about the digit to be changed

:Change value

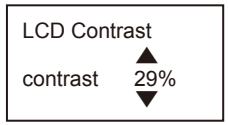
ESC :Back to the menu “Device settings”

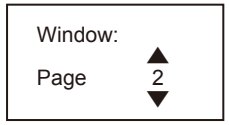
6.4.2.2 Parameter

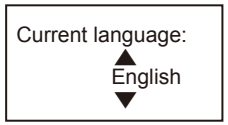


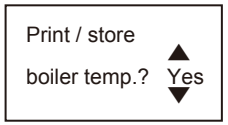
:Select the function

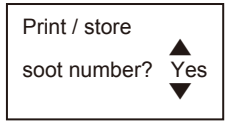
:Start the function











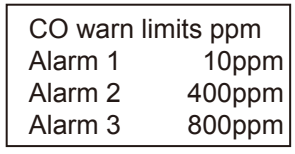
:Change value / Language / Setting

:Back to the menu “Parameter”

6.4.3 CO alarm

:Set CO alarm

Fuctory initial value
alarm1: 150ppm
alarm2: 400ppm
alarm3: 800ppm



:change CO threshold values

:Confirmation CO alarm

ESC :Back to “Extension menu”

In the gas measurement a warning appears if the threshold value is exceeded.

CO alarm can be set up between 10 to 10,000ppm.

7.Measurement item

Continuously measured items	Unit
CO	[ppm]
CO	[%]
Temperature (Kthermocouple) *	[℃]
Temperature (Pt 2000Ω) *	[℃]

* Option

8. Storage

8.1 Operating and storage temperature

Operating temperature 0 to 45℃
Storage temperature -20 to 60℃

Long term non-operating and storage:
1, charge battery every 3 weeks at the line power
2, store in a dry place

Recommendation :
Discharge battery before charging (turn power on of unit and wait until auto shut-down before charging.)

9. Guarantee

Guarantee period : 12months from date of dispatch.
Guarantee: During guarantee period, if your instrument brakes down although correct usage basedon this user manual, we will repair it by free of charge.
In case you have trouble, firstly please contact to HODKA CO., LTD. (+81-(0)6-6922-5501), then send your instrument to HODKA CO., LTD.
International transportation cost is not include in guarantee.
HODAKA CO., LTD shall not be liable for any loss or damage whatever arising from content errors or any mis-use of this instrument.

HODAKA CO., LTD.
1-6-17 Asahiku Takadono Osaka Japan 535-0031
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FAX: +81-(0)6-6923-1617

Traceability certification can be issued at HODAKA. (Additional cost will be required)

10.Technical Specifications

Flue gas analyzer　ホダカテスト®　HT-1210N				
Measurement	CO	Measurement range	0～10000ppm (0.000～1.000%)	
		Accuracy	Measurement=0～200ppm : less than ±10ppm Measurement=200ppm～: less than ±5% measurement	
		Resolution	1 ppm (0.001%)	
		Response	with in 30 sec.	
	Temperature (Kthermocouple)	Measurement range	0～650℃, 0～1100℃(depend on probe)	
		Accuracy	±1℃ or±1% measurement (0 ～ 650 ℃) ±2% measurement (650.1 ～ 650 ℃)	
		Resolution	0.1℃(0～999.9℃) , 1℃(1000～ 1100℃)	
	Temperature (PT2000Ω)	Measurement range	0～100℃	
		Accuracy	Less than ± 1℃	
		Resolution	0.1℃	
Sensor	CO	Electrochemical sensor		
	Combustion temp.	K thermocouple		
	Ambient temp.	Pt 2000 Ω		
Operating and storage temperature		Operating : 0℃～+45℃　Storage : -20℃～+60℃		
Display		Dot matrix		
Data store		100 data		
Power supply		International NiCad battery 6V and line power (AC100-240V 50/60Hz DC12V 270mA)		
		Max. 8hours in a row		
Dimension		80×150×35 mm		
Weight		Main unit approx. 0.33Kg		
Standard equipment	Built in	Pump, Interface for PC (RS232) Data logger (possible to store 100 data), interface for printer		
Probe : HT-1229D or HT-1006	Accessories	Battery, gas sampling hose, condensate trap, carrying case,softcase		
	Description		Art. No.	
	*Standard probe		HT-1229D	insertion max.180mm、 without temp. sensor
	*Standard probe with K thermocouple		HT-1006	insertion max. 180mm、 0～650℃
Optional items	Probes for flue gas		HT-1238D	"L"shape probe、insertion max.80mm、without temp. sensor
			HT-1379D	"L"shape probe、insertion max.80mm、 0～650℃
			HT-1235D	Long probe、insertion max.650mm、without temp. sensor
			HT-1342D	high temp. probe, insertion max.135mm、 0～950℃
			HT-1111D	high temp. long probe, insertion max. 660mm、 0～950℃
	Probes for temperature	Kthermocouple	HT-1251	φ3×130L、 0～950℃、for air/liquids
			HT-1252	φ1.5×130L、 0～950℃、for air/liquids
			HT-1253	φ3×130L、0～400℃、for air/liquids/food、centric top
			HT-1254	130L、0～400℃、for surface /rifts/air/liquid
			HT-1255	φ4×130L、0～650℃、for surface /air/liquid
			HT-1256	φ40、 0～450℃、magnetic probe for surface
			HT-1257	0～180℃、Pliers probe for plates, tube
	Ambient temp.	Pt2000Ω	HT-1321	0～100℃、for air
	Adapter		HT-1318	AC100～240V
	Heard case		HT-1315	Aluminum、dimension : 350×460×155 weight : 2.9kg
	Measurement software		HT-2094	Online View 2000 (Windows XP/7)
	Infrared printer		HT-1610	Printing=max.6000 lines
	Roll paper for Infrared printer		HT-1636	5 rolls
	Hood		HT-1376	for hot water supply device (gas、oil)、stove

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