

# Operating instructions

## BRIGON 500 NT

Professional hand-held analyser for the direct measurement of CO<sub>2</sub>



**Measure exactly,  
what you need!**



Part 3 for CO

21.04.2010 Doc. no. 16334 Rev. 0 INT



measurement  
instruments for  
professionals

<b>Contents:</b>	
<b>Product description</b>	<b>3</b>
<b>View of the plug connections</b>	<b>3</b>
<b>Commissioning, handling, storage</b>	<b>4</b>
<b>Important Safety Instructions</b>	<b>4</b>
<b>Definitions and instructions</b>	<b>5</b>
Rotary switch	5
Common symbols and abbreviations	5
<b>Recommendations for measuring</b>	<b>6</b>
<b>Operation</b>	<b>7</b>
<b>Rotary switch position Menu</b>	<b>9</b>
Menu Setup	9
Menu Pressure (tightness test)	9
Menu Report	9
Menu SCREEN	10
Menu SERVICE	10
<b>Rotary switch position Status</b>	<b>10</b>
<b>Rotary switch position AUX</b>	<b>10</b>
<b>Rotary switch position O<sub>2</sub>/Eff (stack loss/efficiency)</b>	<b>11</b>
<b>Rotary switch position CO/CO<sub>2</sub></b>	<b>11</b>
<b>Rotary switch position p (Pressure/Differential pressure)</b>	<b>11</b>
<b>Rotary switch position <math>\pm\Delta p</math> (Tightness test)</b>	<b>11</b>
<b>Rotary switch position <math>\Delta T</math> (differential temperature)</b>	<b>12</b>
<b>Rotary switch position ext.CO (CO in ambient air)</b>	<b>12</b>
<b>Additional function MANOMETER</b>	<b>12</b>
<b>Calibration</b>	<b>13</b>
<b>Stack loss measurement / Mid-stream search</b>	<b>13</b>
<b>Pressure/Draught, Differential pressure measurement</b>	<b>14</b>
<b>Maintenance and Service</b>	<b>14</b>
<b>Battery, power supply</b>	<b>14</b>
<b>Water trap and particle filter</b>	<b>15</b>
<b>CO<sub>2</sub>- and CO sensor</b>	<b>15</b>
<b>What to do, if...</b>	<b>15</b>
<b>Technical data</b>	<b>18</b>
<b>NOTES</b>	<b>19</b>
<b>Disposal</b>	<b>20</b>

## Product description

BRIGON 500 NT measures  $\text{CO}_2$ , CO, differential pressure as well as flue gas and ambient air temperature. The instrument calculates  $\text{O}_2$ ,  $\text{CO}_{\text{undiluted}}$ , lambda, stack loss  $q_A$  and efficiency (Eta).

The data are displayed in function oriented measuring windows or user selectable window in a back-lighted display.

When storing a reading, as for example Oxygen concentration  $\text{O}_2$ , the readings of flue gas temperature and ambient air temperature as well as the calculated values  $q_A$ , differential temperature, Eta and  $\text{CO}_2$  are stored and can be optionally printed.

Sensor calibration takes max. 90 seconds and is performed automatically after switching on the analyser.

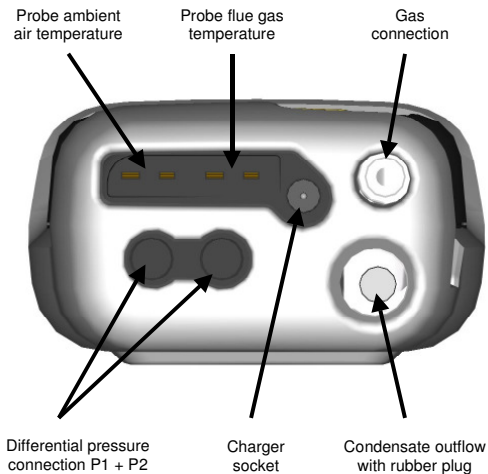
Flue gas analyser has an integral watertrap with particle filter. Damp from the flue gas is condensed and collected in the watertrap. The filter prevents smut particles from getting into the analyser.

Please, note that your flue gas analyser is a product designed, manufactured and sold solely for the purpose of flue gas analysis of burners. So, please, use your analyser and its accessories only for this purpose.

Should you require to use it for other purposes, please obtain our written permission to do so first.

**Keep these operating instructions in a safe place close to your analyser as quick reference should the need arise.**

## View of the plug connections



## Commissioning, handling, storage

Your BRIGON 500 NT is delivered with 4 mignon batteries. Even in switched off mode the batteries supply the clock of the analyser so, that the batteries are discharging even if you do not use your BRIGON 500 NT.

Therefore we recommend to remove the batteries from your analyser if you do not need it for a few days.

To prevent an impairment of the electrochemical sensors, please avoid the use and storage of your BRIGON 500 NT in the environment of perspiring substances, e.g. solvents. Do not use these substances for cleaning your BRIGON 500 NT either.

Take care that no moisture or condensate gets into the analyser.



Always make sure the batteries resp. rechargeable batteries (option) are fully charged, especially if the analyser has not been used for a long period of time.

## Important Safety Instructions

Your BRIGON 500 NT has been developed and manufactured with the utmost care to ensure safe and reliable operation over many years. As with all electronic appliances, you must be aware of certain general precautions. These are intended for your safety and to protect the analyser from damage.

Read these operating instructions carefully, and keep all documents in a safe place for future reference.

### Be sure that...

- you carry out only the routine maintenance according to the operating instructions. Opening the case of the instrument can cause damage to vital parts. ***The warranty will become void if repair/modifications are undertaken by unauthorised persons!***
- after having changed parts of the BRIGON 500 NT which have an influence on the accuracy of the measurement, the concerned measuring channel should be tested at the authorised service point for the reason of quality management.
- Magnetic fields – emerging from the magnets of the soft case of the analyser – can set off sparks, can have an influence on pacemakers, can disturb electronic and electrotechnical components and can delete data memories.

### Take care that...

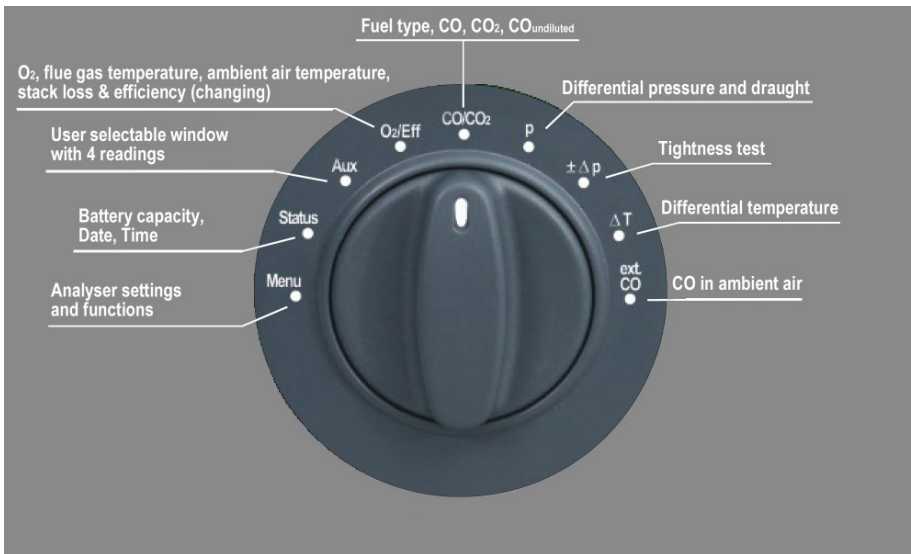
- your power outlet data matches that of the charger. If in doubt, consult your dealer or BRIGON MESSTECHNIK directly.
- Do not expose your BRIGON 500 NT to temperatures higher than 50°C (as they can for example occur in a car being parked in the blazing sun). It could happen that the analyser will get overheated and that especially the electrochemical sensors will be destroyed. Do also avoid temperatures below -20°C.

- the charger is disconnected from the power outlet before cleaning the analyser. Use only a damp cloth.

**Do not use cleaning agents containing solvents!**

## Definitions and instructions

### Rotary switch



### Common symbols and abbreviations

T1	Flue gas temperature in °C
T2	Ambient air temperature in °C
ΔT	Differential temperature °C
O <sub>2</sub>	Oxygen in Vol%
CO <sub>2</sub>	Carbon dioxide in Vol%
CO/CO <sub>2</sub>	Ratio carbon monoxide to carbon dioxide
$\nabla$	Stack loss $q_A$
Menu:	Settings (Setup)
Aux	Aux(iliary): user selectable window
$\eta_N$	Combustion efficiency Eta (Nett; factory setting)
$\eta_G$	Combustion efficiency Eta (Gross)
$\eta_C$	Combustion efficiency Eta (Condensing)

P	Pressure/draught
$\lambda$	Excess air (Lambda)
CO	Carbon monoxide
COp	Carbon monoxide in ppm
COu	Carbon monoxide undiluted in ppm
N<-C->G	Various stack loss calculation types (nett, gross and condensing). <b>Factory setting N</b>
FUEL	Fuel type
LOG	Memory cell
-OC-	Temperature probe is not connected
-O>	Reading or calculated value is too small, too high or can not be calculated
----	O <sub>2</sub> /CO/NO sensor calibration is not successful

## Recommendations for measuring

Take measurements during normal operation of the burner. To avoid incorrect combustion conditions during start-up, take measurements only after the burner has reached its particular operating temperature (e.g. Boiler Water Temperature at least 60°C).

Before storing the readings, the sensors *should be supplied with flue gas for at least 3 minutes*.

The sampling point in the flue should be at least 2D (twice the diameter) downstream of any bend. A sampling point at a different location is only allowed if it is not practically possible to place the aperture 2D away from the joint (e.g. if there is a bend there) and the flue gas conditions are stable and reproducible.

### Before each measurement

Check the tightness of your probe unit (probe, O-rings, grip, filter, tubing and gas plug) from the top of the probe to the end of the tubing with an appropriate testing device e.g. BRIGON-tightness-tester for probes and tubes, Item.-No.: 3039.


The cables must be clean inside, i.e. no dirt or condensate, and it must not be pinched while measuring.

Have your BRIGON 500 NT checked regularly by an authorised service point or directly by BRIGON MESSTECHNIK. The CO<sub>2</sub>-sensor and the CO-sensor **must** be checked every year.



Take care that the gas outlet at the bottom of the analyser is always open.





# Operation


**Switching on** By pressing the  button you switch the analyser on. The sensors are calibrated automatically. Make sure that the probe is not inserted into the flue gas pipe and hold your analyser in fresh air.


On switch on, the analyser beeps 4 times and displays date, time and model number. The countdown runs from 90 to 0 until sensors are ready to use. Through integral dynamic calibration the countdown might be finished within 20 - 30 seconds. Calibration will last longer as the analyser gets older or in case it was overstressed with high CO concentration. If the repeated calibration was not successful, sensors must be tested and, if necessary, replaced.

**Note** **During calibration both temperature probes should be connected to the device!**

If the ambient air probe ( $T_2$ ) is connected to the analyser during the countdown, this temperature probe is used for further measurements. In case any probe (for example, flue gas probe) is connected to the analyser during countdown, the temperature, measured by the flue gas probe will be used for further measurements and calculations as  $T_2$ . If no probe is connected, the analyser's internal ambient temperature sensor will be used until the analyser is switched on the next time.




**Selecting fuel type** Turn the rotary switch to the position MENU, press the button  twice, select the required fuel type using the buttons  , press confirm button  and turn the rotary switch to the required measuring program position.

**Switching off** By pressing the  button you can switch your analyser off. The displays counts down from 30 with the pump on to clean the sensors with fresh air. Make sure that probe connected to the analyser is in fresh air.

Press the  button to stop the countdown and return to the measuring mode.




Attention: BRIGON 500 NT will switched off only when the CO reading is below 20 ppm. If the CO reading is higher, the analyser displays CO HIGH and flush the sensor further.


**Navigation** Use the    buttons to change the settings, to navigate in MENU, to switch between the measuring windows, to zero the pressure sensor and to choose the display order.

Take care that the buttons must be pressed shortly or longer to perform certain functions in different measuring programs.

**Print**


To print out the readings from the current display or from the memory cell press the  button shortly and quickly release it. The analyser displays „Printing“ until this is complete. Press and release the key again to abort printing.

**Back lighting**

Press the  button shortly. Backlighting of the display and pocket light turns ON or OFF.

Be aware, that using the lights increases the power consumption of the batteries and leads to a shorter operating time.


**Pump**

The analyser normally operates with the pump on in any measuring mode. Press the  button shortly to switch the pump OFF or ON again.


When the pump is switched off, the analyser displays -PO- (Pump off) in the corresponding display line and a double beep sound comes regularly.

**Attention: the pump will not switch OFF if CO-reading is above 20 ppm. It helps to protect the CO sensor from damage.**

**Zero pressure sensor**

Press and hold the  button. The top line of the display shows „CAL ZERO“.

**Storing the readings**

To store the reading, press and hold the  button until the top line display shows „LOG NO“.







The instructions on viewing and printing the stored readings you can find in chapter MENU/Report (see next page).

**Memory capacity**

Your BRIGON 500 NT can store different readings:




Stack loss readings:	99	memory cells
Tightness test:	20	memory cells
Differential temperature readings:	20	memory cells
CO readings in ambient air:	20	memory cells

At the end of the measurement the next available memory cell is taken automatically, for example LOG 02, to store the readings.

To view the stored data press the   buttons in the measuring mode until the analyser shows „DISPLAY“ and confirm it with the  button. You can choose storage cells by pressing the   buttons and confirming your choice with the  button.

# Rotary switch position Menu

**SETUP**  
**PRESSURE**  
**REPORT**  
**DISPLAY**  
**SERVICE**

To use your analyser effectively there are various measuring programs at your disposal. Pressing the   buttons you can switch between the menu functions and confirm with the  button.

## Menu Setup

**SET FUEL**  
**EXIT**  
**LANGUAGE**  
**SET DATE**  
**SET TIME**  
**N<-C-G**

In SET FUEL you can choose fuel type.

Pressing EXIT you finish SETUP function.

In LANGUAGE you can choose different country settings.

In SET DATE you can set date.

In SET TIME you can set time.

In N<-C->G setting you can switch between various stack loss or combustion efficiency calculation modes. Standard in Germany is N (nett).

## Menu Pressure (tightness test)

**SMOOTH**  
**EXIT**  
**TIME**  
**PS. UNITS**  
**RESOLVE**

SMOOTH ON or OFF:

Pressing EXIT you finish this function.

TIME: Pressure sensor stabilisation time TIME 01 and TIME 02 in minutes.

PS.UNITS: hPa, mmHg, PSI, kPa, Pa, mmH<sub>2</sub>O, mbar, inH<sub>2</sub>O

RESOLVE: Resolution HIGH or LOW: Resolution of readings

## Menu Report

**COMB ´N**  
**EXIT**  
**ROOM CO**  
**TEMP**  
**TIGHTN ´S**  
**PRESSURE**

You can choose the required report:

COMB ´N = Combustion test

ROOM CO = CO in ambient air


TIGHTN ´S = Tightness test

TEMP = Differential temperature test

PRESSURE = Pressure test

DISPLAY shows you the stored readings. The analyser displays cell number in the top line e.g. LOG 01.

Pressing the ▲ button quickly you can change the content of the second line on the display, pressing the ▼ button quickly you can change the content of the third line on the display. Pressing the arrow buttons longer you can switch between the storing cells (e.g. from LOG 01 to LOG 02).

To print out the readings press the  button.

Pressing EXIT you finish this function.

## Menu SCREEN

<b>CONTRAST</b>
<b>EXIT</b>
<b>HEADER</b>
<b>EXIT</b>

CONTRAST: You can set screen contrast between 00-20, factory setting 04

Pressing EXIT you finish this function.

HEADER: You can set the printer text, 2 lines with 20 signes each

AUX: You can select the readings to be displayed in each line (1 - 4).

## Menu SERVICE

<b>CODE</b>
<b>0000</b>

Functions for Authorized Service Points.

## Rotary switch position Status

<b>BAT</b>	<b>70</b>
<b>12:00:00</b>	
<b>01/04/08</b>	
<b>CAL</b>	<b>375</b>

To display batteries/rechargeable batteries capacity, time, date and calibration status (for internal purposes of Service points)

## Rotary switch position AUX

**(Example)**

<b>λ</b>	<b>1.21</b>
<b>P</b>	<b>90.00</b>
<b>△</b>	<b>4.5</b>
<b>T<sub>1</sub></b>	<b>122.8c</b>

User selectable window

## Rotary switch position O<sub>2</sub>/Eff (stack loss/efficiency)

O <sub>2</sub> %	4.4
T <sub>1</sub>	122.8c
T <sub>2</sub>	21.6c
EffN	95.1

1. line: O<sub>2</sub> concentration in %
2. line: flue gas temperature in °C
3. line: ambient air temperature in °C
4. line: alternative stack loss or efficiency in %

Consult the chapter „Stack loss measurement/ Mid-stream search“

## Rotary switch position CO/CO<sub>2</sub>

LIGHT OIL	
CO <sub>2</sub> %	12.2
COp	100
COu	127

1. line: current fuel type
2. line: CO<sub>2</sub> reading in %
3. line: CO reading in ppm
4. line: CO<sub>undiluted</sub> reading in ppm

## Rotary switch position p (Pressure/Differential pressure)

PRESSURE	
PRESS TO	
ZERO	
↓	

Press the ▼ button to zero pressure sensor. **Do not change the position of BRIGON 500 NT until the end of the measurement!**



PRESSURE	
P	12.5
mbar	
12:00:00	

## Rotary switch position ±Δp (Tightness test)

PRESSURE	
PRESS TO	
ZERO	
↓	

Press the ▼ button to zero pressure sensor. **Do not change the position of BRIGON 500 NT until the end of the measurement!**



STABIL'N	
P1	0.00
mbar	
START	↓


TIGHTN' S	
P1	90.00
mbar	
START	↓

Connect the pressure plug P1 to the sampling point and press the ◀ button. The measurement is taken during the pre-defined TIME 01 (standard 60 sec., see **Menu PRESSURE**) and the reading Pressure P1 is stored temporarily.

```

TIGHTN´S
P1 90.00
P2 91.00
TIME 120


```

Press the  button again. The new measurement is taken during the pre-defined TIME 02 (standard 120 sec., see **Menu PRESSURE**) and the reading Pressure P2 is stored temporarily.

```

LOG 03
P1 90.00
P2 91.00
PRINT ↓

```

Once the measurement is taken, the analyser displays the storage cell for the readings P1 und P2 (e.g. LOG 03). To print our the readings press the  button.


To exit this function turn the rotary switch to any other position.

### Rotary switch position $\Delta T$ (differential temperature)

```

TEMP
T1 25.4c
T2 10.2c
 $\Delta T$  15.2c

```


To print our the readings press the  button

### Rotary switch position ext.CO (CO in ambient air)

```

ROOM CO
TO START
PRESS
↓

```

To start the Room CO test press the  button. The analyser records 15 sets of 1 minute samples.

TEST = Current measurement number  
LOG = storage cell number




```

ROOM CO
CO 00
TEST 00
LOG 01

```

### Additional function MANOMETER


On switch on press and hold the  button, the analyser switches to the MANOMETER mode. Alle the other functions except for SETUP are not available. To use these functions switch OFF and again ON your BRIGON 500 NT.

```

B500NT
12:00:00
01/04/08
TIME 20

```

Pressure sensor is stabilized within max. 20 sec.

To zero pressure sensor press the  button. **Do not change the position of the analyser untill the end of the measurement!**



```

P 15.40
T1 25.4c
T2 10.2c
 $\Delta T$  15.2c

```

## Calibration

During sensor calibration sensors are supplied with fresh air for approx. 90 seconds



Purge the sensor with fresh air before taking measurements in every new location.

Connect both temperature probes to the analyser during the countdown.

---



Should one of the readings be not correct after the calibration, the analyser displays the error.

Purge the sensors with fresh air for at least 15 minutes with the pump ON.

Should the analyser display the error repeatedly, the respective sensor should be replaced.

If CO-sensor was overstressed with more than 2000 ppm, purge the sensor with fresh air.

## Stack loss measurement / Mid-stream search



Stack loss measurements must be taken from the mid-stream (area with the highest flue gas temperature).

### Preparations:



Before each measurement check the tightness of your probe unit (probe, O-rings, grip, filter, tubing and gas plug) from the top of the probe to the end of the cable with an appropriate testing device e.g. BRIGON-tightness-tester for probes and tubes, Item.-No.: 3039.



Check the plug's orientation is being correct.

Mid-stream search :

Seek the point with the highest flue gas temperature monitoring the displayed T1 – reading.

Fixing the probe :

Once the probe is in mid stream (point with the highest flue gas temperature), use the cone to fix it in the sampling point.

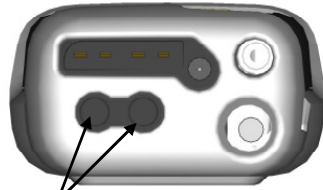
## Pressure/Draught, Differential pressure measurement



You can measure pressure/draught with standard probe as well as with the probe for measuring chimney draught (option).

Connect the cable plug to the pressure slot P1.

If you want to measure differential pressure, connect the cable plugs to the slots P1 and P2, where P1 is "+" and P2 is "-".



Pressure slot P1 + P2



**To achieve the highest accuracy, do not move the analyser until the measuring test has been completed!**

## Maintenance and Service



Your BRIGON 500 NT is almost entirely maintenance-free. You can easily take a few maintenance operations and replace some wearing parts not to waste valuable working time for service/repairs.



After having replaced the parts which influence the accuracy of the measurement, the concerned measuring channel should be tested by the authorised service point for the reason of quality management.



Lubricate cable couplings and o-ring of the water trap thriftily with oil when necessary.



Be sure,

- that lubricant oil doesn't get into the plugs !
- that when you have finished measurements no condensate remains in the probe and connecting cable.

## Battery, power supply

Your BRIGON 500 NT is delivered with 4 mignon batteries. Even in switched off mode the batteries supply the clock of the analyser and are discharging even if you do not use your BRIGON 500 NT.

You can also operate your analyser with mains adapter or other standard batteries.

**Please, be aware that battery capacity displays remaining capacity in percentage, e.g. new batteries: 6 V = 100. Fully recharged batteries: 4,8 V = 80.**

## Water trap and particle filter

To protect the sensors from condensate and dirt particles in flue gas, it is extremely important to use the combined water trap and particle filter.

The condensate from the flue gas is trapped in a cell. Due to transparent material you are able to control the condensate level and thus empty the cell through the rubber stopper if necessary.

The particle filter is used to retain smallest soot- and dirt particles. Check the filter regularly and replace if necessary. The particle filter may become wet during long time measurements. If so pull the filter out of the cell. When you replace it, take care that the o-ring is not damaged.

After a measurement with high condensate volume we advise to open the water trap and dry it together with the cable by room temperature.

## CO<sub>2</sub>- and CO sensor

Used up: If the analyser displays „----“or „error“ after several calibrations were performed, the corresponding sensor must be replaced.

---

Tip: CO<sub>2</sub> and CO sensor can only be replaced by BRIGON MESSTECHNIK or the authorized service point, as the analyser has to be recalibrated with testing gases.

---

To ensure excellent performance we recommend to use only BRIGON original accessories and spare parts. BRIGON MESSTECHNIK takes no responsibility for any damage resulting from usage of other accessories and spare parts, which could have been prevented by using BRIGON original spares.

Service and maintenance which exceeds the routine procedures described in this manual, may only be performed by BRIGON MESSTECHNIK directly or by the authorised service point.

BRIGON MESSTECHNIK accepts no claims for damage resulting from repair or modifications performed by an unauthorised person.

## What to do, if...

You will soon discover that your analyser is exceptionally intelligent. It does not accept "impossible" readings, prevents measurement errors and uses optical or acoustic warnings to draw your attention to error sources. The analyser makes it easy for you to deal with any problems yourself in (almost) every situation.

---

Switching-on not possible: The analyser cannot be switched on resp. switches off automatically although the power supply is sufficient: check if the batteries are placed correctly in the sockets and contact the built-in springs.

---

Sensors  
----

If the analyser displays „-----“ as CO<sub>2</sub> or CO reading, purge the sensors for at least 15 minutes with fresh air. If the analyser still displays „-----“ after repeated calibration, the corresponding sensor must be replaced.

If CO-sensor has been overstressed with more than 2000 ppm, purge the sensor with fresh air.

The analyser can also display „-----“ if the batteries capacity is low. Replace the batteries or operate your analyser via the adapter.

---

-OC-  
-O>-

The analyser displays „-OC-“, or „-O>-“, if the reading exceeds or is below the acceptable range.

The same applies if the temperature probe is not connected, a sensor has not been successfully calibrated or a calculated value is not within acceptable range.

Check that the temperature probe is connected correctly.

---

O<sub>2</sub>, CO or  
pressure  
readings are  
not correct  
or „zero“

Check the probe from the end of the probe up to the analyser plug-in for leaks. Take care that the o-ring on the water trap filter is placed correctly and is not damaged.

Check if the particle filter is wet, its orientation is correct as well as if o-ring and the rubber stopper are positioned properly.

Check if the gas plug is connected to the analyser's correct socket.

---

No printout:

If the thermoprinter prints, but the paper is blank, check if the paper has been put into the printer the wrong way round. Remove the roll and turn it over.

Also check printer's batteries.

---

No  
response:

Analyser does not respond and can not be switched off: perform a „Reset“ by switching off the power supply, i. e. removing the batteries resp. rechargeable batteries and/or the charger shortly (2 min) and then reconnecting them. Please check time and date afterwards and correct them if necessary.

---

Service:

Always return your analyser for service or repairs together with all connecting cables, probes, factory control report, detailed description of the problem and the invoice to your supplier.

---

Warranty: All BRIGON Messtechnik GmbH instruments, probes and accessories are guaranteed against manufacturing defects or component failure for a period of 12 months, providing they are used under normal conditions for the purpose for which they are designed. This guarantee does not cover normal wear and tear, consumables, damage due to misuse, abuse or incorrect maintenance. This guarantee offers a free of charge repair or replacement at the Company's discretion, provided the product is returned for inspection. The Company shall be under no liability whatsoever for any defect in the goods.

***The warranty will become void if repair/modifications are undertaken by unauthorized persons!***

**You can find BRIGON service points at: [www.brigon.de](http://www.brigon.de) or contact us -  
we advise you the shortest way: Tel. +49 61 06 / 82 07-13**

## Technical data

### Flue gas temperature

Range:	-0 °C .. + 600 °C Type K, 0..400 °C TÜV approved acc. to EN 500379-1 and -2
Resolution:	0,1 °C
Accuracy:	≤ ± 2 °C (up to 125 °C) ≤ ± 3 °C (125...250 °C) ≤ ± 4 °C (from 250 °C) t <sub>0,98</sub> -time ≤ 50s

### Ambient air temperature

Range:	-0 °C ... + 100 °C Type K, 0...80 °C TÜV approved acc. to EN 500379-1 and -2
Resolution:	0,1 °C
Accuracy:	≤ ± 1 °C, t <sub>0,98</sub> -time ≤ 120s

### CO<sub>2</sub> concentration

Range:	0...20,0 Vol% CO <sub>2</sub> TÜV approved acc. to EN 500379-1 and -2
Resolution:	0,1 Vol%
Accuracy:	≤ ± 0,2 Vol%, t <sub>0,97</sub> -time ≤ 50s

### CO concentration

Range:	0...2000 ppm TÜV approved acc. to EN 500379-1 and -3 short-time overstressing up to 4000 ppm possible
Resolution:	1 ppm
Accuracy:	≤ ± 20 ppm (up to 400 ppm) ≤ ± 5 % from reading (over 400 ppm)

### Pressure and Draught

Range:	-80 mbar ... + 80 mbar TÜV approved acc. to EN 500379-1 and -2
Resolution:	0,01 mbar
Accuracy:	≤ ± 0,02 mbar (up to ± 5 mbar) ≤ ± 1 % from reading (over ± 5 mbar)

### Additional Specifications

Ambient operating range:	+ 5 ... + 40 °C
Transport and storage temperature:	- 20 ... + 50 °C
Approval:	TÜV By RgG 267 for O <sub>2</sub> , T <sub>flue gas</sub> and T <sub>ambient air</sub>



## Disposal

Only materials and components of high quality and low environmental impact were used in the manufacture of your BRIGON 500 NT. Please assist in returning these valuable raw materials to the production cycle or to dispose it in accordance with national and international laws.

---

### **BRIGON Messtechnik GmbH**

Kronberger St. 11  
63110 Rodgau, Germany  
Tel. + 49 6106 82070  
Fax + 49 6106 820740  
e-mail: [export@brigon.de](mailto:export@brigon.de)  
Internet: [www.brigon.de](http://www.brigon.de)  
WEEE-Reg.-Nr. DE 17217267

State 21.04.2009

Doc. no. 16334 Rev. 0

INT

All rights reserved, including the right to copy this operating instruction partly or completely.

Technical changes of the product or changes in operating instruction to be effected without prior notice.