

Måleinstrumenter:

► Testo 350-S / 350-XL



## UTVIDELSE



### Utvidelse:

Flere testo 350 enheter kan kobles sammen for å måle store anlegg, dette kan leses av på en pc.



**Testo 350 er et meget kraftig instrument beregnet på storindustri. Instrumentet har mange utbygningmuligheter og det er mulighet for sammenkobling av flere 350-enheter som kan styres fra en PC.**

Den måler alle de vanlige verdiene som temperatur, forbrenningsvirkningsgrad, røykgasstap, O<sub>2</sub>, CO<sub>2</sub> og trekk. Instrumentet kan også bygges ut med forskjellige andre sensorer så den kan måle: CO/H<sub>2</sub>, CO<sub>low</sub>/H<sub>2</sub>, NO<sub>2</sub>, SO<sub>2</sub>, m<sup>3</sup>/s, kg/h, qA, NO, NO<sub>low</sub>, HC, H<sub>2</sub>S, mA, mV, m/s, t/y.

Instrumentet leveres med internt printer for rask utskrift av målinger. Det kan også kobles til PC for å lagre målinger.

**Nyhet**



**VVPARTS®**

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**NYHET!**

°C

O<sub>2</sub>

CO

CO<sub>Low</sub>

NO

NO<sub>xLOW</sub>

CO<sub>2</sub> (IR)

SO<sub>2</sub>

λ / qA  
CO<sub>2</sub>

HC

H<sub>2</sub>S

mA  
mV

hPa

m/s

m<sup>3</sup>/h

t/y

## Technical data/testo 350 S/XL flue gas analyser

Probe type	Temperature measurement	O <sub>2</sub> measurement	CO (H <sub>2</sub> compensated)	CO (H <sub>2</sub> compensated)	CO <sub>2</sub>	NO measurement	NO <sub>low</sub> measurement	NO <sub>2</sub> measurement	SO <sub>2</sub> measurement
Meas. range	-40 to +1200 (+100 to +1200 °C) ±0.5 °C (-40 to +99.9 °C)	±0.1% Vol. % (0 to +25 Vol. % O <sub>2</sub> )	0 to +10000 ppm CO	0 to +500 ppm CO	0 to +500 ppm CO <sub>2</sub> max Vol. % CO <sub>2</sub>	0 to +3000 ppm NO	0 to +300 ppm NO	0 to +500 ppm NO <sub>2</sub>	0 to +5000 ppm SO <sub>2</sub>
Accuracy ±1 digit	±0.8% of mv (+100 to +1200 °C) ±0.5 °C (-40 to +99.9 °C)	±0.8% of mv (0 to +25 Vol. % O <sub>2</sub> )	±5% of mv (+200 to +2000 ppm CO) ±1% of mv (+200 to +10000 ppm CO) ±10 ppm CO (0 to +100 ppm CO)	±5% of mv (+40 to +500 ppm CO) ±2 ppm CO (0 to +39.9 ppm CO)	Calculated from O <sub>2</sub>	±5% of mv (+100 to +1999.9 ppm NO) ±1% of mv (+2000 to +3000 ppm NO) ±5 ppm NO (0 to +99.9 ppm NO)	±5% of mv (+40 to +300 ppm NO) ±2 ppm NO (0 to +39.9 ppm NO)	±5% of mv (+100 to +500 ppm NO <sub>2</sub> ) ±1% of mv (+200 to +5000 ppm SO <sub>2</sub> ) ±5 ppm SO <sub>2</sub> (0 to +99.9 ppm SO <sub>2</sub> )	±5% of mv (+100 to +5000 ppm SO <sub>2</sub> ) ±1% of mv (+200 to +5000 ppm SO <sub>2</sub> ) ±5 ppm SO <sub>2</sub> (0 to +99.9 ppm SO <sub>2</sub> )
Resolution	0.1 °C (-40 to +1200 °C)	0.01 Vol. % O <sub>2</sub> (0 to +25 Vol. % O <sub>2</sub> )	1 ppm CO (0 to +10000 ppm CO)	0.1 ppm CO (0 to +500 ppm CO)	0.01 Vol. % CO <sub>2</sub>	1 ppm NO (0 to +3000 ppm NO)	0.1 ppm NO (0 to +300 ppm NO)	0.1 ppm NO <sub>2</sub> (0 to +500 ppm NO <sub>2</sub> )	1 ppm SO <sub>2</sub> (0 to +5000 ppm SO <sub>2</sub> )
Reaction time	20 s	40 s	40 s	40 s	20 s	30 s	30 s	40 s	30 s
Reaction type	t <sub>10</sub>	t <sub>10</sub>	t <sub>10</sub>	t <sub>10</sub>	t <sub>10</sub>	t <sub>10</sub>	t <sub>10</sub>	t <sub>10</sub>	t <sub>10</sub>

Probe type	Efficiency	Flue gas loss	Differential pressure 1	Differential pressure 2	Velocity	CO <sub>2</sub> meas. (H <sub>2</sub> compensated)	H <sub>2</sub> S measurement
Meas. range	0 to +120 %	-20 to +99.9 % qA	+200 to +200 hPa	-40 to +40 hPa	0 to +40 m/s	0 to +50 Vol. % CO <sub>2</sub>	0 to +300 ppm H <sub>2</sub> S
Accuracy ±1 digit			±1.5% of mv (+50 to -200 hPa) ±1.5% of mv (+50 to +200 hPa) ±0.03 hPa (-2.99 to +2.99 hPa)	±1.5% of mv (+50 to -200 hPa) ±1.5% of mv (+50 to +200 hPa) ±0.03 hPa (-2.99 to +2.99 hPa)		±0.1% vol. % CO <sub>2</sub> (0 to +50 Vol. % CO <sub>2</sub> ) ±0.1% vol. % CO <sub>2</sub> (0 to +50 Vol. % CO <sub>2</sub> ) ±0.1% vol. % CO <sub>2</sub> (0 to +50 Vol. % CO <sub>2</sub> )	±0.1% vol. % CO <sub>2</sub> (0 to +50 Vol. % CO <sub>2</sub> ) ±0.1% vol. % CO <sub>2</sub> (0 to +50 Vol. % CO <sub>2</sub> ) ±0.1% vol. % CO <sub>2</sub> (0 to +50 Vol. % CO <sub>2</sub> )
Resolution	0.1 % (0 to +120 %)	0.1 % qA (-20 to +99.9 % qA)	0.1 hPa (-200 to +200 hPa)	0.1 hPa (-40 to +40 hPa)	0.1 m/s (0 to +40 m/s)	0.01 Vol. % CO <sub>2</sub> (0 to +50 Vol. % CO <sub>2</sub> ) 0.01 Vol. % CO <sub>2</sub> (0 to +50 Vol. % CO <sub>2</sub> ) 0.01 Vol. % CO <sub>2</sub> (0 to +50 Vol. % CO <sub>2</sub> )	0.1 ppm (0 to +300 ppm)
Reaction time						<10 s	35 s
Reaction type						t <sub>10</sub>	t <sub>10</sub>

### Measurement range extension

Single dilution with selectable dilution factor (option)

CO measurement (H <sub>2</sub> compensated)	Meas. range	Accuracy	Resolution
CO <sub>low</sub> meas. (H <sub>2</sub> compensated)	0 to +1000 ppm	±2 % of mv (additional error)	1 ppm or 0.1 ppm at CO <sub>low</sub>

### Technical data for HC module

Parameter	Methane	Propane	Butane
Meas. range <sup>1</sup>	100 to 40,000 ppm	100 to 21,000 ppm	100 to 18,000 ppm
Accuracy	less than 400 ppm (100 to 4000 ppm)	less than 400 ppm (100 to 4000 ppm)	less than 400 ppm (100 to 4000 ppm)
Resolution	10 ppm	10 ppm	10 ppm
Min. O <sub>2</sub> req. in flue gas	2% + (2 x methane reading)	2% + (5 x propane reading)	2% + (6 x butane reading)
Reaction time (90)	less than 40 s	less than 40 s	less than 40 s
Response factor <sup>2</sup>	1	1.5	2

<sup>1</sup> Lower explosion limit must be adhered to.  
<sup>2</sup> The HC module is adjusted to methane in the factory. It can be adjusted to another gas by the user.

### Additional Technical data

Dimensions: 395 x 275 x 95 mm  
Weight: 3200 g  
Storage temperature: -20 to +50 °C  
Operating temperature: -20 to +45 °C  
Housing material: ABS  
Memory: 250,000 readings  
Power supply: NiMH battery main unit (00 V to 260 V, 47 to 63 Hz) or exchangeable rechargeable batteries  
Electrical power consumption: 0.5 A (110 V AC), 0.3 A (230 V AC)  
Dewpoint calculation: 0 to 99 °C to Maximum positive pressure: 50 hPa (500 mm water column)  
Maximum negative pressure: 200 hPa (2000 mm water column)  
Pump flow: 1 l/min, with flow monitoring  
Max. dust load: 20 g/m<sup>3</sup> dust in flue gas  
Max. humidity load: +20 °C  
Dewpoint temperature at sample gas inlet of analyser box  
Trigger input: Voltage 5 to 12 Volt (rising or falling edge)  
Pulse width: > 1 s  
Load: 5 Vmax, 5 mA, 12 Vmax, 40 mA  
Warranty: Analyser 2 years (excluding working parts, e.g. measurement cell), CO/NO/NO<sub>2</sub>/SO<sub>2</sub>/H<sub>2</sub>C/HC 1 year, O<sub>2</sub> measurement cell 1 1/2 years, CO/IR measurement module 2 years

## Differences between flue gas analysers

	testo 350 S	testo 350 XL
Maximum no. of measuring modules	6	6
O <sub>2</sub>	0 – 25 Vol. %	■
CO (H <sub>2</sub> )	0 – 10,000 ppm	○
CO <sub>low</sub> (H <sub>2</sub> )	0 – 500 ppm	○
NO	0 – 3,000 ppm (0.1 ppm resolution)	○
NO <sub>low</sub>	0 – 300 ppm (0.1 ppm resolution)	○
NO <sub>2</sub>	0 – 500 ppm (0.1 ppm resolution)	○
SO <sub>2</sub>	0 – 5,000 ppm	○
HC	0 – 4 Vol. % (0.001 % resolution)	○
H <sub>2</sub> S	0 – 300 ppm (0.1 ppm resolution)	○
CO <sub>2</sub> (NDIR)	0 – 50 Vol. %	○
Built-in gas preparation unit (is recommended with high humidity levels in flue gas and during long-term measurements >2 hrs measuring time)	○	■
Automatic fresh air rinse with valve (incl. measurement range extension with dilution factor 5 for all sensors)	○	■
Measurement range extension for CO measuring module (with selectable dilution factors)	○	○
CO measuring module switch-off via adjustable switch-off threshold	■	■
Trigger input – stops and starts measurement externally	○	○
Differential pressure measurement (-40 to +40 hPa / -200 to +200 hPa)	■	■
Built-in rechargeable battery	■	■
2 temperature probe sockets (Type K NiCr-Ni)	■	■
Data logger (250,000 readings)	■	■
Testo data bus connection	■	■

■ = Standard      ○ = option

### Differences between control units 350-S and 350-XL

	testo 350 S control unit	testo 350 XL control unit
Built-in printer	■	■
Differential pressure measurement (-40 to +40 hPa / -200 to +200 hPa)	■	■
1 user-defined probe socket (for e.g. temperature, relative humidity measurement, etc.)	○	○
Touchscreen	○	○
Connection from a flue gas analyser to the Testo data bus	■	■
Connection of several flue gas analysers, analog output boxes and testo 454 jiggers to the Testo data bus	○	○
NiMH rechargeable battery pack	○	○
Internal memory for 250,000 readings	○	■

■ = Standard      ○ = option      -- = Not possible

Control unit testo 350-S



Control unit testo 350-XL



## Produkt:      Varenr:      Kode:      Pris:

Testo 350 XL Røkgassanalyser-enhet	0563 0350		
Testo 350 S Røkgassanalyser-enhet	0563 0368		
Testo 350 XL Kontroll-enhet	0563 0353		
Testo 350 S Kontroll-enhet	0563 0369		
2m datakabel	0449 0042		
5m datakabel	0449 0043		
20m datakabel	0449 0044		

Nyinstallasjon eller oppgradering av celler: NO, NO<sub>2</sub>, CO<sub>low</sub>, SO<sub>2</sub>, HC, H<sub>2</sub>S  
Utskifting av defekte celler: NO, NO<sub>2</sub>, CO<sub>low</sub>, SO<sub>2</sub>, HC, H<sub>2</sub>S



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