



## ANKERSMID Online Infrared Analyzer ABYSS SynGas Series 100-800



\* Picture may vary

### Application

The general application is coal or biomass gasification or pyrolysis, coal chemical process, off-gas from steel and iron making process such as blast furnace, coking, converter, direct Iron ore smelting reduction as well as Endo & Exo gas generators for heating treating.

### Description

The analyzers can be used for measurement of the concentration of up to 6 gases such as CO, CO<sub>2</sub>, CH<sub>4</sub>, C<sub>n</sub>H<sub>m</sub>, H<sub>2</sub> and O<sub>2</sub> components in sample gases simultaneously. It is based on the single source dual-beam non-dispersion infrared (NDIR) method for CO, CO<sub>2</sub>, CH<sub>4</sub>, C<sub>n</sub>H<sub>m</sub> and a micro-TCD (Thermal Conductivity Detector) gas sensor for H<sub>2</sub> and O<sub>2</sub> by fuel cell method. This analyzer is designed with a digital pulsable infrared source and dual-beam systems.

There is no effect of CO<sub>2</sub> and CH<sub>4</sub> on the H<sub>2</sub> detector as the H<sub>2</sub> reading is compensated for the interference effects of the other gases measured.

- **Up to 6 gases measurement with combination of NDIR,TCD and ECD gas sensor technology**
- **Simple construction with pulsable infrared source and dual-beam technology**
- **Constant temperature control for gas bench for high stability**
- **320\*240 LCD display with menu operation**
- **Integrated flow meter with needle valve**
- **Automatic zero calibration**
- **Compensation of H<sub>2</sub> by CO, CO<sub>2</sub> and CH<sub>4</sub> sensor**

Version	Part number	Gas components
ABYSS SynGas 800	ASG 800	CO+CO <sub>2</sub> +CH <sub>4</sub> +H <sub>2</sub> +O <sub>2</sub> +C <sub>n</sub> H <sub>m</sub> +Calorie
ABYSS SynGas 700	ASG 700	CO+CO <sub>2</sub> +CH <sub>4</sub> +H <sub>2</sub> +O <sub>2</sub> +Calorie
ABYSS SynGas 600	ASG 600	CO+CO <sub>2</sub> +CH <sub>4</sub> +H <sub>2</sub> +Calorie
ABYSS SynGas 500	ASG 500	CO+CO <sub>2</sub> +CH <sub>4</sub> +O <sub>2</sub>
ABYSS SynGas 400	ASG 400	CO+CO <sub>2</sub> +O <sub>2</sub>
ABYSS SynGas 300	ASG 300	CO+CO <sub>2</sub>
ABYSS SynGas 200	ASG 200	CO+O <sub>2</sub>
ABYSS SynGas 100	ASG 100	CO/CO <sub>2</sub> /H <sub>2</sub> /CH <sub>4</sub> (Single Gas %)



## ANKERSMID Online Infrared Analyzer

## Technical data

ABYSS SynGas Series 100-800

Specifications						
Measurement		CO, CO <sub>2</sub> , CH <sub>4</sub> , C <sub>n</sub> H <sub>m</sub> , O <sub>2</sub> , H <sub>2</sub> + BTU index (gas calorific value)				
Calculation		High heating value or low heating value in MJ/m3 or kcal/m3 N2(Optional)				
Gas flow		0.7 - 1.2 l/min, external flow meter with needle valve				
Pressure of gas inlet		20 - 100mbar				
Sampling gas requirement		Remove water vapor, dust (<1um) and oil				
Response time		<15s (NDIR)				
Warm-up time		15min				
Interface		RS232 (real time and memory data download software included)				
Output		4 - 20mA (according to the requirement)				
Technology		CO, CO <sub>2</sub> , CH <sub>4</sub> , C <sub>n</sub> H <sub>m</sub> : proprietary dual-beam NDIR detectors O <sub>2</sub> : industrial electrochemical cell H <sub>2</sub> : proprietary thermal conductivity detector				
Display		LCD 320 x 240 with back-light function Simultaneous indication of the 7 measures and units				
		Auto-zero function via keyboard interface				
Data logging		Up to 1500 sets of data; logging rate adjustable from 3 to 99 sec Possibility to identify 10 different sites and up to 100 measuring points				
Operating temperature		0 - 50°C				
Relative humidity		0 - 95%				
Ambient air pressure		86 - 108kPa				
Power supply		230V/50Hz				
Dimension		483mm x 373mm x 140mm (W x L x H)				
Weight		± 10-13Kg (stationary), ± 4-5Kg (portable)				
Gas	Method	Range		Resolution	Precision	Error
CO	NDIR	0-5%, 10%, 30%, 50%, 75%, 100%		0,01%	≤2% FS	≤2%
CO <sub>2</sub>	NDIR	0-5%, 10%, 25%, 50%, 100%		0,01%	≤2% FS	≤2%
CH <sub>4</sub>	NDIR	0-5%,10%, 30%, 100%		0,01%	≤2% FS	≤2%
H <sub>2</sub>	TCD	0-10%, 20%, 25%, 30%, 75%, 100%		0,01%	≤3% FS	≤2%
O <sub>2</sub>	ECD	0-5%, 25%		0,01%	≤3% FS	≤2%
C <sub>n</sub> H <sub>m</sub>	NDIR	0-5%, 10%, 20%		0,01%	≤2% FS	≤2%



### ANKERSMID Portable Infrared Analyzer ABYSS SynGas Series 100P-800P



\* Picture may vary

#### Application

The general application is coal or biomass gasification or pyrolysis, coal chemical process, off-gas from steel and iron making process such as blast furnace, coking, converter, direct Iron ore smelting reduction as well as Endo & Exo gas generators for heating treating.

#### Description

The ABYSS portable infrared SynGas analyzer is powered by Li-ion battery and can be used without AC power supply.

The analyzers can be used for measurement of the concentration of up to 6 gases such as CO, CO<sub>2</sub>, CH<sub>4</sub>, C<sub>n</sub>H<sub>m</sub>, H<sub>2</sub> and O<sub>2</sub> components in sample gases simultaneously. It is based on the single source dual-beam non-dispersion infrared (NDIR) method for CO, CO<sub>2</sub>, CH<sub>4</sub>, C<sub>n</sub>H<sub>m</sub> and a micro-TCD (Thermal Conductivity Detector) gas sensor for H<sub>2</sub> and O<sub>2</sub> by fuel cell method. This analyzer is designed with a digital pulsable infrared source and dual-beam systems.

A nylon carrying bag for analyzer and accessories is included as standard.

There is no effect of CO<sub>2</sub> and CH<sub>4</sub> on the H<sub>2</sub> detector as the H<sub>2</sub> reading is compensated for the interference effects of the other gases measured.

- **Up to 6 gases measurement with combination of NDIR,TCD and ECD gas sensor technology**
- **Simple construction with pulsable infrared source and dual-beam technology**
- **Constant temperature control for gas bench for high stability**
- **320\*240 LCD display with menu operation**
- **Integrated flow meter with needle valve**
- **Automatic zero calibration**
- **Built-in sample pump**
- **Compensation of H<sub>2</sub> by CO, CO<sub>2</sub> and CH<sub>4</sub> sensor**

Version	Part number	Gas components
ABYSS SynGas 800P	ASG 800p	CO+CO <sub>2</sub> +CH <sub>4</sub> +H <sub>2</sub> +O <sub>2</sub> +C <sub>n</sub> H <sub>m</sub> +Calorie
ABYSS SynGas 700P	ASG 700p	CO+CO <sub>2</sub> +CH <sub>4</sub> +H <sub>2</sub> +O <sub>2</sub> +Calorie
ABYSS SynGas 600P	ASG 600p	CO+CO <sub>2</sub> +CH <sub>4</sub> +H <sub>2</sub> +Calorie
ABYSS SynGas 500P	ASG 500p	CO+CO <sub>2</sub> +CH <sub>4</sub> +O <sub>2</sub>
ABYSS SynGas 400P	ASG 400p	CO+CO <sub>2</sub> +O <sub>2</sub>
ABYSS SynGas 300P	ASG 300p	CO+CO <sub>2</sub>
ABYSS SynGas 200P	ASG 200p	CO+O <sub>2</sub>
ABYSS SynGas 100P	ASG 100p	CO/CO <sub>2</sub> /H <sub>2</sub> /CH <sub>4</sub> (Single Gas %)

**ANKERSMID Portable Infrared Analyzer****Technical data**

ABYSS SynGas Series 100P-800P

Specifications					
Measurement		CO, CO <sub>2</sub> , CH <sub>4</sub> , C <sub>n</sub> H <sub>m</sub> , O <sub>2</sub> , H <sub>2</sub> + BTU index (gas calorific value)			
Calculation		High heating value or low heating value in MJ/m3 or kcal/m3 N2(Optional)			
Gas flow		0.7 - 1.2 l/min, external flow meter with needle valve			
Pressure of gas inlet		20 - 100mbar			
Sampling gas requirement		Remove water vapor, dust (<1um) and oil			
Response time		<15s (NDIR)			
Warm-up time		15min			
Interface		RS232 (real time and memory data download software included)			
Output		4 - 20mA (according to the requirement)			
Technology		CO, CO <sub>2</sub> , CH <sub>4</sub> , C <sub>n</sub> H <sub>m</sub> : proprietary dual-beam NDIR detectors O <sub>2</sub> : industrial electrochemical cell H <sub>2</sub> : proprietary thermal conductivity detector			
Display		LCD 320 x 240 with back-light function Simultaneous indication of the 7 measures and units			
		Auto-zero function via keyboard interface			
Data logging		Up to 1500 sets of data; logging rate adjustable from 3 to 99 sec Possibility to identify 10 different sites and up to 100 measuring points			
Operating temperature		0 - 50°C			
Relative humidity		0 - 95%			
Ambient air pressure		86 - 108kPa			
Power supply		External: 230V/50Hz Internal: with battery and charger; autonomy of > 4h with pump in operation			
Dimension		380mm x 380mm x 255mm (L x D x H)			
Weight		± 5Kg			
Gas	Method	Range	Resolution	Precision	Error
CO	NDIR	0-5%, 10%, 30%, 50%, 75%, 100%	0,01%	≤2% FS	≤2%
CO <sub>2</sub>	NDIR	0-5%, 10%, 25%, 50%, 100%	0,01%	≤2% FS	≤2%
CH <sub>4</sub>	NDIR	0-5%,10%, 30%, 100%	0,01%	≤2% FS	≤2%
H <sub>2</sub>	TCD	0-10%, 20%, 25%, 30%, 75%, 100%	0,01%	≤3% FS	≤2%
O <sub>2</sub>	ECD	0-5%, 25%	0,01%	≤3% FS	≤2%
C <sub>n</sub> H <sub>m</sub>	NDIR	0-5%, 10%, 20%	0,01%	≤2% FS	≤2%