

GA-40plus - Flue gas analyser



The flue-gas analyser GA-40 plus has been designed to set a new standard in its class. Madur's wide experience and market input have led to the development of a compact unit which contains both analyser and data-logger.

Main features

- standard version with two sensors: O₂, CO, NO
- optional cells possible: NO₂, SO₂, CO₂, H₂S, HCl CH₄
- flue gas and ambient temperature measurement
- pressure, draught and differential pressure measurement
- three analogue inputs (1 current/voltage, 1 thermocouple, 1 thermistor)
- soot test according to Bacharach, electronically regulated to 1.63 l calculation of all combustion parameters
- permanent self-check with visual and acoustic warnings and a screen showing the status of all components
- electronic compensation of pump flow rate
- pre-programmed and user-programmable fuel data
- cross-sensitivity and temperature compensation
- all measured and calculated parameters shown as current or averaged values
- graphic presentation of both sets of averaged results
- non-volatile memory for continuous storage with capacity of 1024 measurements (up to ten data banks)
- each measurement can contain ten different variables
- variables for storage selected by user
- additional data memory for thirty measurement reports
- data-logger operation for analogue inputs
- averaging with two different averaging time bases: 10 sec (pre-set) and user programmable (1 - 60 minutes)
- large field LCD with graphic capability and back-lighting
- 57 mm wide dot matrix printer with graphic capability
- RS-232C interface for reading stored results and "on-line" communication
- multifunctional PC programme for handling of stored data and "on-line" communication
- freely programmable range for CO cell with automatic ventilation
- built-in ancillary pump for CO cell ventilation

Operating data

Power supply	230V, 50 Hz or 110V, 60 Hz. Up to 4 hours from the internal rechargeable battery
Battery charging time	10 hours
Operating temperature range	10 °C ÷ +50 °C
Storage temperature range	-20 °C ÷ +55 °C
Dimensions	460 x 170 x 160 mm (18.1 x 6.7 x 6.3 in)
Weight	6.2 kg

Options

- external ambient air temperature sensor with connection cable
- gas flow velocity measurement
- two analogue outputs (0/4 - 20 mA)
- Peltier dryer

Value	Measuring method	Range	Resolution
O ₂ - oxygen	electrochemical cell	0..25%	0.01%
CO ₂ - carbon dioxide	calculated	0..25%	0.01%
CO ₂ - carbon dioxide - option	IR sensor	0..100%	0.01%
CO - carbon monoxide	electrochemical cell	0..20000ppm	1ppm
NO/NO _x nitric oxide	electrochemical cell	0..5000ppm	1ppm
CH ₄ - methane - option	IR sensor	0..5%	0.01%
NO ₂ , SO ₂ , H ₂ S - option	electrochemical cell	sensor-dependent	1ppm
Smoke determination	Bacharach's comparative method	0..9	1
T _{gas} - Flue-gas temperature	thermocouple	0..1600°C	1°C
T _{amb} - Ambient temperature	thermistor	0..100°C	1°C
Lambda - Excess air number	calculated	1..50	0.01
SL - Stack loss	calculated	0..100%	0.1%
Eta - Efficiency	calculated	0..120%	0.1%
Draught / pressure / differential pressure	piezoresistive bridge sensor	-50hPa..+50hPa	0.1Pa
V - gas flow velocity	Pitot tube	1..30m/s	0.1m/s

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