FLUKE®

Biomedical

VAPOR Anesthesia Tester

Safety Instructions

Introduction

The VAPOR Anesthesia Gas Detector (the Product or Accessory) measures concentrations of Anesthesia gas. The Accessory connects to the VT900A Gas Flow Analyzer (the Analyzer). To use the Accessory, see *Operation*. For more information, see the VT650/VT900A Users Manual.

Intended Use

The anesthesia sensor accessory is intended to be used only with the VT900A Gas Flow Analyzer to measure anesthesia gases described below. It is for use by service technicians trained in medical instrumentation technology in hospitals, clinical engineering departments, independent service organizations, and at original equipment manufacturing facilities. It is intended to be used in the laboratory environment, outside of the patient care area, and not to be used on patients or to test devices while connected to patients.

Safety

A **Warning** identifies hazardous conditions and actions that could cause bodily harm or death. A **Caution** identifies conditions and actions that could damage the Product, the equipment under test, or cause permanent loss of data.

⚠⚠ Warning

To prevent possible electrical shock, fire or personal injury:

- **Read all safety information before you use the Product.**
- **Carefully read all instructions.**
- **Use the Product only as specified, or the protection supplied by the Product can be compromised.**
- **Do not use the Product around explosive gas, vapor, or in damp or wet environments.**
- **Do not use the Product if it operates incorrectly.**
- **Use this Product indoors only.**
- **Use only the external mains power supply included with the Product.**
- **Disable the Product if it is damaged.**
- **Do not use the Product if it is damaged.**
- **Do not put metal objects into the connectors.**

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Table 1 shows the symbols used on the Product and in this document.

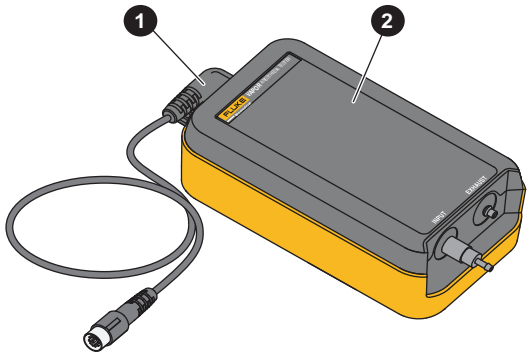
Table 1. Symbols

Symbol	Description
	WARNING. RISK OF DANGER.
	WARNING. HAZARDOUS VOLTAGE. Risk of electric shock.
	Consult user documentation.
CE	Conforms to European Union directives
	This product complies with the WEEE Directive marking requirements. The affixed label indicates that you must not discard this electrical/electronic product in domestic household waste. Product Category: With reference to the equipment types in the WEEE Directive Annex I, this product is classed as category 9 "Monitoring and Control Instrumentation" product. Do not dispose of this product as unsorted municipal waste.

The Accessory

Table 2 shows the Accessory connections.

Table 2. The Accessory



1	Connector to the Analyzer
2	The Product

Operation

Use the Accessory with the Analyzer to measure concentrations of anesthesia gas flow. For more information on connecting and using the Accessory with the Analyzer, see the VT650/VT900A Users Manual.

Maintenance

The Accessory needs little maintenance or special care. Treat the Analyzer as a calibrated measurement instrument. Do not drop or cause other mechanical abuse. To clean the Accessory, wipe with a damp cloth.

Specifications

Temperature

Operating .....10 °C to 40 °C

Operating Humidity.....10 % to 90 % non-condensing

Storage.....-20 °C to 60 °C

Storage Humidity.....5 % to 95 % non-condensing

Altitude .....3000 m

Weight .....0.5 kg (1.2 lb)

Size.....19 cm x 9.5 cm x 5.7 cm (7.5 in x 3.8 in x 2.3 in)

Safety

IEC 61010-1 .....Overvoltage Category none, Pollution Degree 2

Electromagnetic Compatibility (EMC)

IEC 61326-1: Basic

Emissions Classification.....IEC CISPR11: Group 1, Class A.

Group 1 have intentionally generated and/or use conductively coupled radio-frequency energy which is necessary for the internal functioning of the equipment itself.

Class A equipment is suitable for use in non-domestic locations and/or directly connected to a low voltage power supply network.

USA (FCC).....Intentional Radiators

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.(15.19)

Specifications for Anesthesia Gas

Please note: total interference for all gases is never larger than 5 % REL.

Table 3. Anesthesia Gas

Gas	Concentration Range[1]	Warmup Specification	Full Specification[3]
Carbon Dioxide (CO2)	0 % to 1 %	±0.4 % ABS	±0.1 % ABS
	1 % to 5 %	±0.5 % ABS	±0.2 % ABS
	5 % to 7 %	±0.6 % ABS	±0.3 % ABS
	7 % to 10 %	±0.8 % ABS	±0.5 % ABS
	10 % to 30 %	Unspecified	Unspecified
Nitrous Oxide (N2O)	0 % to 20 %	±(8 % of rdg + 2 % ABS)	±2 % of ABS
	20 % to 100 %	±(8 % of rdg + 3 % ABS)	±3 % of ABS
Halothane (HAL)	0 % to 1 %	±(8 % of rdg + 0.15 % ABS)	0.15 % ABS
	1 % to 5 %	±(8 % of rdg + 0.2 % ABS)	0.2 % ABS
	5 % to 30 %	Unspecified	Unspecified
Enflurane (ENF)	0 % to 1 %	±(8 % of rdg + 0.15 % ABS)	0.15 % ABS
	1 % to 5 %	±(8 % of rdg + 0.2 % ABS)	0.2 % ABS
	5 % to 30 %	Unspecified	Unspecified

Table 3. Anesthesia Gas (continued)

Gas	Concentration Range[1]	Warmup Specification	Full Specification[3]
Isoflurane (ISO)	0 % to 1 %	±(8 % of rdg + 0.15 % ABS)	0.15 % ABS
	1 % to 5 %	±(8 % of rdg + 0.2 % ABS)	0.2 % ABS
	5 % to 8 %[2]	±(8 % of rdg + 0.3 % ABS)	0.3 % ABS
	8 % to 30 %	Unspecified	Unspecified
Desflurane, (DES)	0 to 1%	±(8 % of rdg + 0.15 % ABS)	0.15 % ABS
	1 % to 5 %	±(8 % of rdg + 0.2 % ABS)	0.2 % ABS
	5 % to 10 %	±(8 % of rdg + 0.4 % ABS)	0.4 % ABS
	10 % to 15 %	±(8 % of rdg + 0.6 % ABS)	0.6 % ABS
	15 % to 18 %	±(8 % of rdg + 1 % ABS)	1 % ABS
	18 % to 23 %[2]	±(8 % of rdg + 3 % ABS)	3 % ABS
	23 % to 30 %	Unspecified	Unspecified
Sevoflurane, (SEV)	0 % to 1 %	±(8 % of rdg + 0.15 % ABS)	0.15 % ABS
	1 % to 5 %	±(8 % of rdg + 0.2 % ABS)	0.2 % ABS
	5 % to 8 %	±(8 % of rdg + 0.4 % ABS)	0.4 % ABS
	8 % to 10 %[2]	±(8 % of rdg + 0.7 % ABS)	0.7 % ABS
	10 % to 30 %	Unspecified	Unspecified

Notes:

1. Gas data is reported as zero if the measured concentration is below the defined threshold level for longer than three seconds (CO_2 - 0.1/0.3 %; N_2O - 3/3 %; O_2 - 0/0 %, Agents - 0.15/0.3 % [Full/ISO accuracy])

2. The extended measurement range is valid for dry gas only and with the specific agent mixed with N_2, air, or O_2.

3. Accuracy specifications include stability and drift.

Warranty and Product Support

Fluke Biomedical warrants this instrument against defects in materials and workmanship for one year from the date of original purchase. During the warranty period, we will repair or at our option replace, at no charge, a product that proves to be defective, provided you return the product, shipping prepaid, to Fluke Biomedical. This warranty covers the original purchaser only and is not transferable. The warranty does not apply if the product has been damaged by accident or misuse or has been serviced or modified by anyone other than an authorized Fluke Biomedical service facility. NO OTHER WARRANTIES, SUCH AS FITNESS FOR A PARTICULAR PURPOSE, ARE EXPRESSED OR IMPLIED. FLUKE SHALL NOT BE LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES OR LOSSES, INCLUDING LOSS OF DATA, ARISING FROM ANY CAUSE OR THEORY.

This warranty covers only serialized products and their accessory items that bear a distinct serial number tag. Recalibration of instruments is not covered under the warranty

This warranty gives you specific legal rights and you may also have other rights that vary in different jurisdictions. Since some jurisdictions do not allow the exclusion or limitation of an implied warranty or of incidental or consequential damages, this limitation of liability may not apply to you. If any provision of this warranty is held invalid or unenforceable by a court or other decision-maker of competent jurisdiction, such holding will not affect the validity or enforceability of any other provision.

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