




# Service protocol CapnoTrue AMP/ASP/MG

## Customer error description:

--

## Bluepoint service error analysis:

<b>Name</b>			
<b>Screw locking:</b>	<input type="checkbox"/> yes	<input type="checkbox"/> No	<b>Software version:</b>
<b>Power supply connector:</b>	<input type="checkbox"/> male, black 	<input type="checkbox"/> male, metal 	<input type="checkbox"/> female, black 
<b>Gas outlet:</b>	<input type="checkbox"/> back	<input type="checkbox"/> top	<input type="checkbox"/> no CapnoTrue®ASP
<i>Analysis result:</i>			

## Actions for repair:

<b>SW update to version:</b> <small>(regularly carried out from v5.9)</small>	<b>HW update:</b> <small>(ASP gas outlet is regularly moved to top housing: Mod.4)</small>
<b>24h load test performed</b> <small>(regularly carried out if main PCBA is replaced)</small>	: <input type="checkbox"/> yes <input type="checkbox"/> no
<b>Actions for repair and replaced parts (Name, REF, SN):</b>	

## Comment to customer:

--

<b>Test Result</b> <small>(detailed test see next pages)</small>	<input type="checkbox"/> Pass <b>AMP/MG: Step 1-5+7, ASP: Step 1-7</b>	<input type="checkbox"/> Fail <b>Don't use device to monitor patients!</b>
<b>Comments:</b>		
<b>Date</b>	<b>Tester</b>	

Model	Device Serial Number	RMA number	Date of analysis
-------	----------------------	------------	------------------

# Service protocol

## CapnoTrue AMP/ASP/MG



Test step	Acceptance criteria	Result	comment
<b>1. Visual inspection</b>			
1.1) Housing, Display, Keypad	No damages or defects	<input type="checkbox"/> pass <input type="checkbox"/> fail	
1.2) Sensors and cable	No exposed optical components, cables or other damages to the sensor	<input type="checkbox"/> pass <input type="checkbox"/> fail	
1.3) External power supply (cable+ connector)	- No damages or defects. - Output voltage: 6,0V - 6,2V. - Electrical test (e.g. SECUTEST VDE 0751) is passed.	<input type="checkbox"/> pass <input type="checkbox"/> fail	
1.4) Label + transparent protective foil	Label and the transparent protective foil are fixed clean to the back of the device.	<input type="checkbox"/> pass <input type="checkbox"/> fail	
1.5) Screw lock	Fixed to upper right-hand screw	<input type="checkbox"/> pass <input type="checkbox"/> fail	
<b>2. Power Supply Options (AA batteries, Li-Poly rechargeable battery, external power supply)</b> <b>Test procedure:</b> switch on with each supply option (see test steps 2.1 - 2.5) >perform Measurements: SpO <sub>2</sub> at finger; etCO <sub>2</sub> by breathing through airway adapter > switch off			
2.1) Only 4xAA Batteries	Battery symbol is displayed. Proper operation (device is providing SpO <sub>2</sub> & CO <sub>2</sub> reading)	<input type="checkbox"/> pass <input type="checkbox"/> fail	
2.2) Only Li-Poly	Battery symbol is displayed. Proper operation (device is providing SpO <sub>2</sub> & CO <sub>2</sub> reading)	<input type="checkbox"/> pass <input type="checkbox"/> fail	
2.3) Only ext. power supply	Power supply symbol is displayed. Proper operation (device is providing SpO <sub>2</sub> & CO <sub>2</sub> reading)	<input type="checkbox"/> pass <input type="checkbox"/> fail	
2.4) ext. power supply + Li-Poly	Charging symbol is displayed. Proper operation (device is providing SpO <sub>2</sub> & CO <sub>2</sub> reading).	<input type="checkbox"/> pass <input type="checkbox"/> fail	
2.5) No sensors are connected to the device. Switch on with 4xAA Batteries with <4.1V.	Low battery alarm (visual and audible)	<input type="checkbox"/> pass <input type="checkbox"/> fail	
<b>3. SpO<sub>2</sub>-Function at simulator (Fluke Index 2, SpO<sub>2</sub> = 82%, Pulse rate = 75bpm, R-curve=BPM)</b>			
3.1) SpO <sub>2</sub> at simulator set point: 82%	82% SpO <sub>2</sub> (+-2 digits)	<input type="checkbox"/> pass <input type="checkbox"/> fail	reading SpO <sub>2</sub> :
3.2) Pulse rate at simulator set point: 75bpm	75 beats/min (+-1 digits)	<input type="checkbox"/> pass <input type="checkbox"/> fail	reading PR:
3.3) SpO <sub>2</sub> low alarm (at default low limit setting: 85%)	Audible and visual	<input type="checkbox"/> pass <input type="checkbox"/> fail	
<b>Model</b>	<b>Device Serial Number</b>	<b>RMA number</b>	<b>Date of analysis</b>

# Service protocol

## CapnoTrue AMP/ASP/MG



Test step	Acceptance criteria	Result	comment
<b>4. CO<sub>2</sub>-Measurement (CO<sub>2</sub> values at breath simulator: CapnoCheck Program 1, 10 breath per minute)</b> Select Mode at CapnoTrue: <i>Main Menu &gt; Service &gt; Maintenance &gt; Check gas accuracy</i> Calibration gas (5% ±0.1vol% CO <sub>2</sub> , 20.9% O <sub>2</sub> balance N <sub>2</sub> )			
4.1) 5vol% CO <sub>2</sub> calibration gas + airway adaptor	EtCO <sub>2</sub> : <b>4.7 – 5.3 vol%</b> FiCO <sub>2</sub> : <b>0.0 – 0.3vol%</b>	<input type="checkbox"/> pass <input type="checkbox"/> fail	value: EtCO <sub>2</sub> / FiCO <sub>2</sub> Zeroing? <input type="checkbox"/> yes <input type="checkbox"/> no
4.2) Breath per minute	10 (+-1 bpm)	<input type="checkbox"/> pass <input type="checkbox"/> fail	reading RR::
<b>5. Alarms und Data Download (switch on device, SpO<sub>2</sub> Sensor at finger, breath through airway adapter)</b>			
5.1) Remove SpO <sub>2</sub> Sensor from finger	Alarm sound and message „SpO <sub>2</sub> Probe off !“	<input type="checkbox"/> pass <input type="checkbox"/> fail	
5.2) Breath 3x through airway adapter and wait 20s	Alarm sound and message „Apnoea !!“	<input type="checkbox"/> pass <input type="checkbox"/> fail	
5.3) Download data to PC with CapnoTrue PC-Software	Successful data download to PC	<input type="checkbox"/> pass <input type="checkbox"/> fail	PC-SW version:
5.4) Delete all data	All stored data in the device are deleted	<input type="checkbox"/> pass <input type="checkbox"/> fail	
<b>6. Leakage test – ISA module (<b>Only</b> for sidestream capnograph CapnoTrue® <b>ASP</b>)</b>			
6.1) Perform leakage test (see Technical Support Manual)	CO <sub>2</sub> drop <0.5vol% in 1 Min.	<input type="checkbox"/> pass <input type="checkbox"/> fail	
<b>7. Packaging and accessories</b>			
7.1) Latest FW on the device?	See server	<input type="checkbox"/> pass <input type="checkbox"/> fail	Ver.    Model    Language
7.2) Time (accuracy RTC)	Same as test PC	<input type="checkbox"/> pass <input type="checkbox"/> fail	
7.3) Remove Li-ion battery	Battery case empty	<input type="checkbox"/> pass <input type="checkbox"/> fail	
7.4) SN on device back label	SN like label in battery case	<input type="checkbox"/> pass <input type="checkbox"/> fail	
7.5) Protective sheet on label	Implemented	<input type="checkbox"/> pass <input type="checkbox"/> fail	
7.6) Screw locking	Implemented	<input type="checkbox"/> pass <input type="checkbox"/> fail	
7.7) Final check	Device and parts clean & no damages	<input type="checkbox"/> pass <input type="checkbox"/> fail	

### Attachments:

Model	Device Serial Number	RMA number	Date of analysis