

**ACCURATE,**  
**AFFORDABLE**  
and yet  
**COMPREHENSIVE.**




**Prime  
Innovation  
for Medical  
Application**

**SPOTLIFE<sup>®</sup>**  
**Vital Signs Monitor**  
**Series**



**ZUG**  
MEDICAL SYSTEMS

# ALL PARAMETERS AT A GLANCE, EVEN GRAPHS AND TRENDS

SpO2 only (SPLF-OX)	SpO2 + NIBP (SPLF-NP)	SpO2 + Mainstream CO2 (SPLF-MC) SpO2 + Sidestream CO2 (SPLF-SE)
		
PARAMETERS		
SpO2	SpO2	SpO2
Pulse Rate	Pulse Rate	Pulse Rate (PR)
Perfusion Index	Perfusion Index	Perfusion Index (PI)
Photoplethysmogram	Photoplethysmogram	Photoplethysmogram
	Systolic blood pressure	End-tidal CO <sub>2</sub> (EtCO <sub>2</sub> )
	Diastolic blood pressure	Inspired CO <sub>2</sub> (FiCO <sub>2</sub> )
	Mean Arterial Pressure	Respiration Rate (awRR)
		Capnogram

## OVERVIEW

Zug Medical System SpotLife® Vital signs monitor has been designed to serve frontline caregivers in emergency, perioperative care and ICU/NICU departments.

With its accurate oximetry adapted for adult as well as neonate, it provides a continuous and accurate monitoring of the SpO2 and PR even in case of low perfusion. SpotLife® VSM is declined in versions with

either NIBP or CO2 measurement with optional fast temperature monitoring.

Its handle and lightweight make it easy for transport use while its 4 stable feet allow a reliable use as bedside monitor. Cost effective, it remains a comprehensive device for multiple applications and environments.

## FEATURES

- Bright, large 5" Color TFT LCD for better readability of all parameters
- Intuitive user interface
- **Selectable Display modes:**
  - digits only, showing parameters values
  - digits and graphs, showing real-time plethysmogram and capnogram/NIBP (according to model)
  - digits, graph and trends, displaying in addition the historical values.
- 9 LED indicators to easily control patient type, units, power and alarm status
- LAN connectivity to interface with central monitoring system (optional software to come).
- USB port for easy updates with new software func-

tions (further connectivity and control options, addition of peripherals)

- New patient presets allowing a one step action to set all alarms limits according to patient type (Adult, Child, Neonate).
- 360° Visible and Audible alarms
- Over 72h trend data with a 1min resolution
- Built-in power supply and 2400mAh lithium battery for 6h continuous monitoring
- Bluetooth printer connectivity for record printouts (all models with option SPLF-PRT)
- Extension port upon request for custom protocols, raw data output for research and other device connectivity.

## FUNCTIONS

- **Oximetry (All models):**
  - Real-time measurement of SpO2, pulse rate (PR), perfusion index (PI), and Variability of Pulse Index (PIV).
  - Real-time photoplethysmogram display
  - High Motion Interference Rejection with advanced anti-movement algorithm
  - High accuracy and reliability even with low blood perfusion down to 0.05%, allowing application in OR, ICU and NICU.

- **NIBP (SPLF-NP model):**
  - o Measurement of Systolic BP, Mean Arterial Pressure, Diastolic BP using oscillometric method.
  - o 3 measurement modes such as manual, auto and continuous
  - o hardware and software over-pressure protection
- **Capnography (SPLF-SE and SPLF-MC models):**
  - o Measurement of EtCO<sub>2</sub>, FiCO<sub>2</sub> and Respiratory Rate (awRR)
  - o Real-time capnogram display
  - o Automatic barometric pressure, temperature compensation and manual anaesthetic gases compensation
- **Thermometry (For all models, Option SPLF-TF):**
  - o Body temperature measurement using Fast temperature probe

## ENVIRONMENTAL CHARACTERISTICS

### Operation

Temperature: 0°C ~ 40°C  
 Humidity: 15% ~ 95%, non-condensing  
 Atmospheric pressure: 70.0kPa ~ 106.0kPa

### Storage

Temperature: -20°C ~ 60°C  
 Humidity: 10% ~ 95%, non-condensing  
 Atmospheric pressure: 57.3kPa ~ 106.0kPa

## ELECTRICAL AND MECHANICAL CHARACTERISTICS

### Electrical Power Supply

AC: 100 ~ 240V ± 10% (built-in adapter)  
 Input power: 60VA  
 Frequency: 50Hz/60Hz ± 3Hz  
 One equipotential grounding interface  
 Product Class: IIb (in accordance with MDD93 /42/ EEC)

### Battery

Built-in rechargeable lithium batteries:  
 11.1 V / 2400mAh

### Mechanical

Dimensions: 255\*140\*95mm (LxWxH)  
 Weight: < 2kg (without accessories)

## INTERFACES

### Connectivity

- USB interface
- RS232 DB9 interface
- Fast TEMP probe (Opt. SPLF-TF)
- Bluetooth Printer (Opt. SPLF-PRT)
- Ethernet Port

### HMI

- Five buttons: Power switch, alarm stop, alarm pause, up and down buttons, menu
- Display: 5" Color TFT LCD, 800 x 480pixels
- Audio/Visual Indicators: Alarm limit reached, Alarm tone, Alarm mute, pulse strength, Patient name, Patient Type, Time, battery status, connection status.
- LEDs: Adult, Neonate, Pressure Unit or SpO<sub>2</sub>/PR (according to model), battery in use, battery charging, silenced alarm.
- User Interface language: English (additional language upon request).

## PERFORMANCES

### Oximetry (All models):

- o SpO<sub>2</sub>: **Measurement Range:** 0 – 100%, **Accuracy Range:** 70 – 100 %, ±2% < 70%, Undefined, **Resolution:** 1%
- o PULSE RATE: **Measurement Range:** 15-300 bpm, **Accuracy Range:** ±2%, **Resolution:** 1 bpm
- o PI: **Measurement Range:** 0-20%, **Resolution:** 0.001%
- o PIV: **Measurement Range:** 0-100%, **Accuracy Range:** Undefined, **Resolution:** 1%

- **NIBP (SPLF-NP model only)**

- METHOD: *Automatic oscillometric*
- OPERATION MODES: *Manual, Automatic, Continuous*
- AUTOMATIC MODE MEASUREMENT INTERVAL: *1min/2min/3min/4min/5min/10min/15min/30min/60min/90min/2h/3h*
- CONTINUOUS MODE MEASUREMENT PERIOD: *5mins, with 5s between each measurement*
- MAXIMUM SINGLE MEASUREMENT TIME: *180s*
- MEASUREMENT RANGE: **Systolic BP:** *Adult mode: 40 ~ 270 mmHg, Pediatric mode: 40 ~ 200 mmHg,*  
**Diastolic BP:** *Adult mode: 10 ~ 210 mmHg, Pediatric mode: 10 ~ 150 mmHg,*  
**MAP:** *Adult mode: 20 ~ 230 mmHg, Pediatric mode: 20 ~ 165 mmHg*
- ACCURACY: **Mean error:** *<±5mmHg, Standard deviation: <8mmHg*
- STATIC PRESSURE MEASUREMENT RANGE: *0 mmHg (0kPa) ~ 300mmHg (39.9kPa)*
- STATIC PRESSURE MEASUREMENT ACCURACY: *±2mmHg or ±1% of reading (Whichever is greater)*
- RESOLUTION: *1 mmHg*
- INITIAL INFLATION PRESSURE SETTING RANGE: *Adult mode: 80 ~ 280 mmHg, Pediatric mode: 80 ~ 210 mmHg*
- INITIAL INFLATION PRESSURE DEFAULT: *Adult mode: 160 mmHg, Pediatric mode: 140 mmHg*
- SOFTWARE OVER-PRESSURE PROTECTION: *Adult mode: 297 ±3mmHg, Pediatric mode: 240 ±3mmHg*
- ALARM RANGE: **Systolic BP:** *Adult mode: 40 ~ 270 mmHg, Pediatric mode: 40 ~ 200 mmHg,*  
**Diastolic BP:** *Adult mode: 10 ~ 210 mmHg, Pediatric mode: 10 ~ 150 mmHg,*  
**MAP:** *Adult mode: 20 ~ 230 mmHg, Pediatric mode: 20 ~ 165 mmHg*

- **Capnography (SPLF-MC and SPLF-SE models)**

- METHOD: *Infrared radiation absorption technology*
- CO<sub>2</sub> MEASUREMENT RANGE: *0 ~ 20 Vol%*
- ACCURACY: *0 ~ 12 %: ± (0.2 Vol% + 2% of reading), 12 ~ 20 % : ± (0.2 Vol% + 6% of reading)*
- MEASUREMENT ACCURACY DRIFT: *accuracy requirements within 6 hours*
- RESOLUTION: *0.1 Vol%*
- ACCURACY: **Mean error:** *<±5mmHg, Standard deviation: <8mmHg*
- APNEA ALARM DELAY TIME: *20s, 25s, 30s, 35s, 40s, 45s, 50s, 55s, 60s*
- ALARM RANGE: *EtCO<sub>2</sub>: 0 ~ 150mmHg, FiCO<sub>2</sub>: 0 ~ 150mmHg, awRR: 0 ~ 150rpm*

- **Thermometry (All models with Option SPLF-TF)**

- METHOD: *Infrared non-contact forefront measurement*
- TEMP MEASUREMENT RANGE: *34 ~ 42.9 °C*
- ACCURACY: *34.0 ~ 34.9 °C ± 0.3 °C, 35.0 ~ 42.0 °C ± 0.2 °C, 42.1 ~ 42.9 °C ± 0.3 °C*
- RESOLUTION: *0.1 °C*
- ALARM RANGE: *34 ~ 42 °C*



## ORDERING

Models	Descriptions
◆ SPLF-OX	➤ SpotLife® Oximeter Only, with Adult SpO2 reusable probe
◆ SPLF-NP	➤ SpotLife® Oximeter and NIBP, with Adult SpO2 reusable probe and Adult NIBP Cuff
◆ SPLF-MC	➤ SpotLife® Oximeter and Mainstream CO2 sensor, with Adult SpO2 reusable probe, one set of adult and neonate reusable airway adapters
◆ SPLF-SE	➤ SpotLife® Oximeter and External Sidestream CO2 sensor, with Adult SpO2 reusable probe, CO2 microstream canula.
◆ SPLF-TF	➤ Optional non contact infrared Fast TEMP probe with cable
◆ SPLF-PRT	➤ Optional Bluetooth thermal printer with one thermal paper roll
◆ RS-XXXX	➤ Optional Roll stand fixed height, locking wheels, with basket, with or without tilt