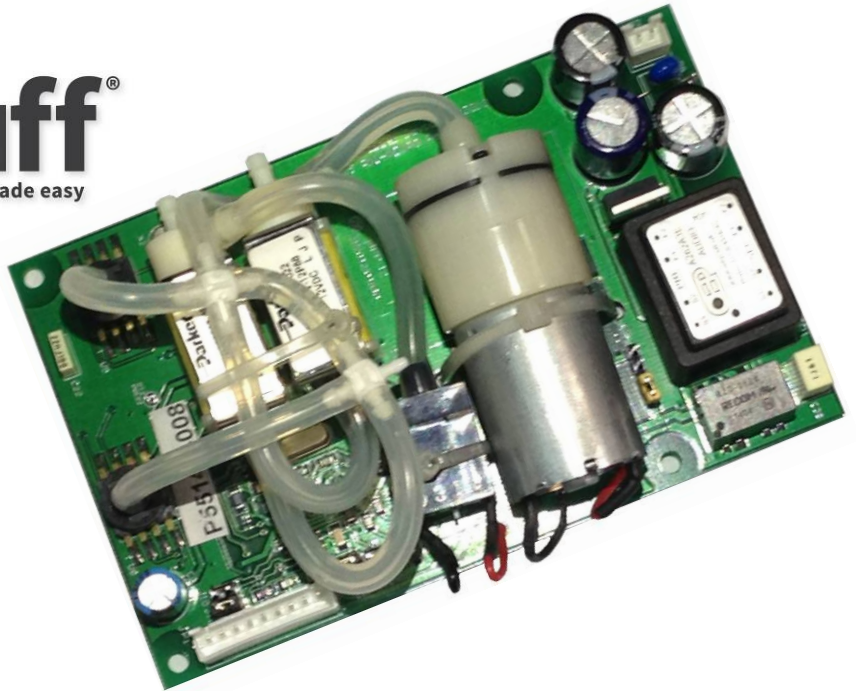


TOF-CUFF™ OEM. NMT AND NIBP OEM BOARD SPECIFICATIONS

TOF-CUFF™ OEM board is a device intended to monitor neuromuscular transmission (NMT) and non-invasive blood pressure (NIBP) of adult patients during surgery.



TOF-CUFF™ is a new method of monitoring neuromuscular transmission based on a modified pressure cuff that incorporates stimulating electrodes. The evoked muscle response is evaluated through the changes in cuff pressure generated by the muscular reaction after the electrical stimulus.

TOF-CUFF™ innovative technology has several advantages:

- Its quick and easy concept **reduces setup time** to only a few seconds.
- Its sensor can be applied on **multiple patient positions** during surgery.
- A **fully automated AUTO-PILOT program** allows the anaesthesiologist to start monitoring **by pressing a single key**.
- From induction to reversal TOF-CUFF™ **adapts the stimulation patterns** in an autonomous way **without the need of intervention by the anaesthesiologist**.

PHYSICAL SPECIFICATIONS

<i>Specification</i>	<i>Data</i>
Length x Width x Height	127 x 80 x 37 mm
Weight	251 g
Mounting	Four mounting holes. Any mounting orientation.

NMT SPECIFICATIONS

<i>Specification</i>	<i>Data</i>
Stimulation circuit	
Stimulation current	1-60 mA (Adults)
Resolution	1 mA
Accuracy	< ±20%
Pulse type	Rectangular, Constant current
Pulse width	0.1 ms, 0.2 ms, 0.3 ms
Pulse energy	< 50 mJ (1000 Ω load)
Load impedance	maximum 5.0 kΩ (at 60 mA)
Applied voltage	maximum 500 V
Stimulation patterns settings	
Pattern Types	ST - Single Twitch TOF - Train of Four PTC - Post-Tetanic Count
ST cycles	1 s, 10 s
TOF cycles	12 s, 30 s, 1 m, 2 m, 5 m, 10 m, 15 m, 30 m, 60 m
PTC tetanic frequency	50 Hz, 100 Hz
PTC tetanic period	5 s
PTC count period	15 s, 20 s, 25 s, 30 s
TOF ratio NMT measurement	
TOF ratio range	0-100 %
Resolution	1 %
TOF responses count	0 to 4

NIBP SPECIFICATIONS

<i>Specification</i>	<i>Data</i>
Accuracy of pressure measurement	
Maximum average error	±5 mmHg
Maximum standard deviation	±8 mmHg
Adults - Pressure ranges	
Systolic pressure range	30 to 250 mmHg
Diastolic pressure range	10 to 218 mmHg
Mean pressure range	20 to 234 mmHg
Overpressure cut-off	315 mmHg
Pulse rate measurement	
Range	40-250 pulses per minute
Resolution	1 pulse per minute
Accuracy	±3 %
General	
Typical measurement time	25 to 45 seconds
Maximum measurement time	150 seconds
Measurement Modes	Manual and Automatic
Transducer Accuracy	±3 mmHg (over full range)

GENERAL SPECIFICATIONS

<i>Specification</i>	<i>Data</i>
Power supply	
Digital Input Voltage	+5 VDC ±5%
Analog Input Voltage	10 - 15 VDC
Total Power consumption	< 5 W
Operating environment	
Temperature	0 – 40 °C
Relative Humidity	5% to 90% non-condensing
Altitude	-300 to 2.000 m

SERIAL INTERFACE

<i>Specification</i>	<i>Data</i>
Configuration	
Baud Rate	38,400 bits/s
Number of bits	8
Parity	No parity
Number of stop bits	1
General	
Data Lines	TxD, RxD and GND
Signal Level	TTL (5 VDC)
Communication Protocol	Proprietary

STANDARDS

The TOF-CUFF OEM board is designed to comply with the requirements of the following standards:

- EN 60601-1:2006. "Medical electrical equipment. Part 1: General requirements for basic safety and essential performance".
- EN 60601-2-10:2015. "Medical electrical equipment. Part 2-10: Particular requirements for the basic safety and essential performance of nerve and muscle stimulators".
- EN 80601-2-30:2010. "Medical electrical equipment. Part 2-10: Particular requirements for the basic safety and essential performance of automated non-invasive sphygmomanometers".

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