NMT Module

Ideal performance for muscle relaxation monitoring

Neuromuscular transmission (NMT) is the transfer of an impulse between a nerve and a muscle in the neuromuscular junction. NMT can be blocked by neuromuscular blocking agents (drugs for muscle relaxation or for causing transient muscle paralysis and prevent patient movement and spontaneous breathing).

The unique and easy to use hand-held controller allows you to operate from a distance while keeping a close eye on your patient. One touch to direct keys gives access to multiple modes, making it really convenient to use. Our fast NMT module provides quantitative, automatic measurement of muscle response to a stimulus with the help of stimulation electrodes, an acceleration transducer, and temperature sensor.

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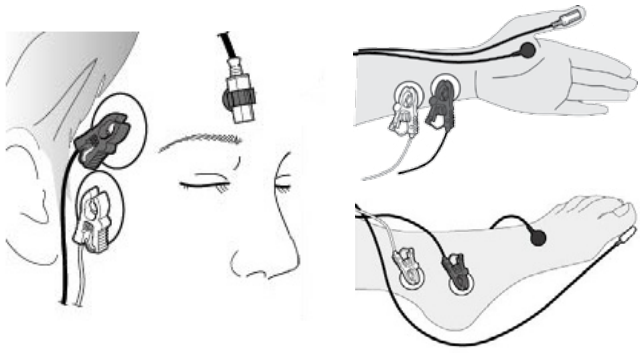
NMT Module

Ease of use

Hand-held controller: A handy controller with four hard keys provides one-touch access to the most frequent operations. The controller lets you operate the NMT module from a distance as well. Also, the module can be operated via the patient monitor.
Quick installation: To install the NMT module, just connect it to the multi-connector on a Life Scope monitor via a SMART cable. Cable management is easy even when the patient is transported. You can mount the NMT module anywhere by using the clip holder. Durable cables and IPX4 waterproofing help prevent trouble during operation.
Complete patient information: The measured values from the NMT module are displayed on the patient monitor, and trended and automatically documented via HL7 output together with all the other monitored parameters.
Measurement: Can be obtained from any nerve or muscle, such as the wrist (ulnar nerve - adductor pollicis muscle), ankle (tibial nerve – flexor halluces brevis muscle), or face (facial nerve – orbicularis oculi muscle), for example.



Measurement can be obtained from superficial nerve or muscle.

Clinical support

- **NMT monitoring:** Provides complete information of patient's dosage requirement and facilitates optimal and cost-effective administration of neuromuscular blocking drugs.
- **Different stimulation types include:**
  - **TOF (train-of-four):** TOF trend provides complete information displayed on Nihon Kohden's Life Scope G9, Life Scope TR, and Life Scope VS, which helps to prepare the next step, such as intubation, extubation, and dosage of antagonist, which may decrease the incidence of residual paralysis.
  - **Single Twitch (one-time stimulation):** This method can be well used in induction or in recovery to monitor real-time anesthesia changes. A single supramaximal stimulation is applied during 200 micro sec at: 1Hz (every 1 sec) and 0.1Hz (every 10 sec).
  - **DBS (double burst stimulation):** A new pattern of nerve stimulation to detect residual neuromuscular block manually. The response to this pattern of stimulation consists of two single separated muscle contractions, of which the second is less strong than the first during non-depolarizing neuromuscular blockade. The ability to identify fade manually at different train-of-four (TOF) ratios was compared in four DBS patterns in which different numbers of impulses in the individual bursts were combined.
  - **PTC (post-tetanic count):** This mode allows for more sufficient, continuous neuromuscular monitoring even in the state of deep muscle relaxation. Also, our Life Scope G9 automatically changes the mode from TOF to PTC (post-tetanic count) to monitor deeper muscle relaxation when patient TOF ratio goes to zero.
  - **TET (tetanic stimulation):** Tetanic stimulation is used in medicine to detect a non-depolarising block or a depolarising block on the neuromuscular junction.

Specifications

AF-101P

Measurement

Acceleration transducer

Stimulation modes

TOF (train of four stimulation)

PTC (post tetanic count stimulation)

Single stimulation

DBS (double burst stimulation)

TET (tetanic stimulation)

Stimulation output

Current	0-60 mA ±30% (at peak)
Selectable range	1 mA steps
Pulse width	200 µs ±30% / 300 µs ±30%
Voltage	0-300 V
Skin impedance	100-5000 Ω

Dimensions and weight

Dimensions	67W x 116H x 31D mm
Weight	200 g

Compatibility

Nihon Kohden Life Scope series	CSM-1901 (will be updated later) BSM-6000 (Ver. 07-11 or later) BSM-3000 (Ver. 07-11 or later)

Environment

Transport and storage environment	Temperature: -20 to +65°C (-4 to +149°F) Humidity: 10-95% RH Atmospheric pressure: 700-1060 hPa
Operating environment	Temperature: +5 to +40°C (+41 to +104°F) Humidity: 30-85% RH (noncondensing) Atmospheric pressure: 700-1060 hPa

Power

5 DCV ±5% (supplied by connected bedside monitor)

Power input	Less than 2.5 Wrms

Safety standard

IEC 60601-1:2005+Amendment 1:2012, IEC 60601-1-2:2007
IEC 60601-1-6:2010+Amendment 1:2013,
IEC 62366:2007+Amendment 1:2014,
IEC 60601-1-9:2007+Amendment 1:2013, ISO 10993-1:2009

Degree of protection against electrical shock	Type BF applied part
Degree of protection against harmful ingress of water	IPX4 (excluding the interface connector)
Method of cleaning and disinfecting or sterilisation	Equipment NOT suitable for sterilisation
Degree of safety of application in the presence of FLAMMABLE ANAESTHETIC MIXTURE WITH AIR, OR WITH OXYGEN, OR NITROUS OXIDE	Equipment not suitable for use in the presence of FLAMMABLE ANAESTHETIC MIXTURE WITH AIR, OR WITH OXYGEN, OR NITROUS OXIDE
Mode of operation	Continuous operation
ME EQUIPMENT type	Indoor mobile type, hand-held

Standard items

Main cable	JW-101P
Stimulation cable	BF-101P
Acceleration transducer	TA-101P
Temperature sensor	TT-101P

Optional items

Hand adapter	YS-114P1
Transducer adapter for thumb	YS-114P2
Transducer adapter for orbicularis oculi	YS-114P3
Holder	DH-101P
Vitrode F	F-150ML, F-150SL, F-150M, F-150S, F-150U3, F-150U5

Improving Healthcare with Advanced Technology

EC REP

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