Technical Manual

TOF-Watch, TOF-Watch S and TOF-Watch SX

®TOF-Watch is a registered trademark in one or more countries

Objective

Neuromuscular Transmission Monitoring

devices

Technical Manual

June, 2009

Schering-Plough Corporation

Marketing Anesthesia

I. General Information

This manual is designated to provide the marketing and sales staff with background information on the TOF-Watch®, TOF-Watch S and TOF-watch SX and accessories.

The manual is meant for **INTERNAL USE ONLY** and should not be provided to third parties.

1. Service policy

The TOF-Watch, TOF-Watch S and TOF-Watch SX do not contain any serviceable parts. Therefore, a real service manual is not available for these devices.

However, in many markets the biomedical engineer at the hospital's technical department or the tender issuing authority may demand a "Service Manual".

The data in this section allow every company to compile easily its own "Service Manual". Although requirements differ in each market, it may be advisable to include following items:

1. Declaration of conformity
2. Product leaflet
3. Warranty information
4. Test procedure description
5. Short setup procedure description
6. Error messages list
7. Cleaning advise
8. TOF-Watch, TOF-Watch S and TOF-Watch SX package and accessories list

2. Warranty

The TOF-Watch, TOF-Watch S and TOF-Watch SX are guaranteed for 1 year (a period of 13 months from date of shipment by N.V. Organon International).

As the TOF-Watch, TOF-Watch S and TOF-Watch SX are a non-serviceable device, no repairs will be made: a defective instrument will simply be replaced free of charge.

Warranty towards the end-user is a matter to be handled by the national company or the distributor. It may be advisable and/or compulsory to notify the customer of the conditions of the warranty.

II. General information on devices

1. List of sales packages and accessories

See Appendix: VI.1 TOF-Watch devices and accessories:

2. Power supply

a. General

The use of a good quality (alkaline) 9-Volt battery is recommended. The battery is not included in the sales package.

Initial tests show a life span of approximately 200 hours with a 400 mA battery, of continuous stimulation under “worst” conditions (surface electrodes, 5 kOhm, 60 mA, 1 Hz stimulation).

When the battery is replaced, the setup values will not be lost. The default settings are stored in an EEPROM. This Electrical Erasable Program Read-Only-Memory stores the setup values for a minimum of 10 years.

b. Battery Warnings

The battery is tested when the TOF-Watch/S/SX is powered on and before every stimulation (either user stimulation or self-test-stimulation).

b.1 Battery low:

This warning advises the user to change the battery before next operation.

If battery low is detected, the battery low symbol will flash for 1 min. and thereafter be shown steady. Any ongoing stimulation will continue. The symbol will be shown until the device measures a battery voltage exceeding 8.5 V (when a new battery has been inserted).

b.2 2. Battery empty:

This warning advises the user, that the TOF-Watch/S/SX cannot function due to the condition of the battery.

If an empty battery is detected, the TOF-Watch/S/SX stops any stimulation and will show the battery empty symbol together with “Err”. From this state, it is only possible to turn off the device. If it is turned on again, without changing the battery, the TOF-Watch/S/SX continues to show the same display.

The battery empty warning will only be removed when battery level is exceeding 8.5 V when the TOF-Watch/S/SX is switched on (when a new battery has been inserted).

3. TOF-Watch/S/SX Cables

a. Insertion and recognition:

To prevent wrong insertion of the cables (stimulation and acceleration), these are mechanical coded. Only the right plug fits into the designated outlet.

The TOF-Watch can detect if a cable is inserted and which type is inserted. This feature is integrated by an electrical coding in the plugs of the individual cables. When the LA cable is connected to the device, the TOF-WATCH automatically switches to low current mode.

b. Strength:

The stimulation cables are of the “tensile cord” type. Tensile cords are cables in which there individual wires (strands) in each conductor are not round as usual but flat squared wires. These are wound around a core thread of non-conducting type. This design makes the cable very flexible and is very resistant to bending (wrinkling) and strain.

The cable used for the acceleration transducer is also of a special type. It tolerates a lot of bending and wrinkling. In spite of the small diameter, the transducer cable can tolerate a strain (load) without being damaged. This is of course not true for the transducer - cable connection.

4. Keyboard

The keyboard and overlay are not constructed as a conventional membrane keyboard but as separate elements. The construction consists of individual switches mounted on the PCB and a separate protective overlay mounted on the enclosure of the instrument.

The large buttons (approx. 10 mm diameter) ensure a very good tactile feedback upon switch activation. The large contact surface minimizes mechanical stress on the protective overlay. The average lifetime of these switches is estimated at over 1 million operations.

All print of text and colors of the keyboard overlay is located on the rear side. Thus, the overlay has a very high resistance towards scratches and wear. In fact, potential damage to text and colors can only occur when the whole foil has been penetrated.

The overlay resists the detergents very well because there is no contact between the agents and the print.

5. Short Setup Procedure

a. Patient not relaxed:

1. Place electrodes in position; attach the acceleration transducer to the thumb with adhesive tape, perpendicular to the direction it moves.
2. Turn on the TOF-Watch/S/SX by pressing the ON/OFF button and holding it down for 1 second.
3. Adjust the stimulation current by pressing the mA (µC) up or down arrow buttons.
4. Administer the induction agent.
5. When the patient is sedated adequately, press the CAL button for automatic calibration (optional) and hold it down for 1 sec.
6. Press the TOF button and hold it down for 1 sec to obtain repetitive TOF stimulation.

The TOF-Watch/S/SX is now ready for monitoring the neuromuscular transmission.

b. Patient already relaxed:

The use of automatic calibration on patients already relaxed will result in incorrect selection of internal gain due to fading.

1. Place electrodes in position; attach the acceleration transducer to the thumb with adhesive tape, perpendicular to the direction it moves.
2. Turn on the TOF-Watch/S/SX by pressing the ON/OFF button and holding it down for 1 second.
3. Adjust the stimulation current by pressing the mA (µC) up or down arrow buttons.
4. Press the TOF button and hold it down for 1 sec to obtain repetitive TOF stimulation.

Since no control twitch height has been established, the response to single twitch cannot be used to measure patient relaxation. Therefore, only the TOF ratio informs about the recovery of a patient.

6. CALIBRATION

With the TOF-Watch/S/SX in stop-mode, pressing down the CAL button for more than one second starts the calibration sequence.

a. TOF-Watch Calibration sequence.

Ten ST stimulations are performed: the first 7 stimulations are used to set the gain in the acceleration circuit; the last 3 ones are used to check the stability of the signal.

If the response of the transducer is not adequate at standard gain, the gain is changed. If the response with the highest gain remains insufficient within the first 7 stimulations, the signal is too low (see the Errors section). Calibration is stopped and the transducer symbol flashes in the display.

If the transducer response with the lowest gain is above the given range within the first 7 stimulations, the transducer signal is too high (see the Errors section). Calibration is stopped and the transducer symbol flashes in the display.

If the acceleration response lies within the range after the first 7 stimulations, the next 3 stimulations are used to evaluate the stability of the signal. If unstable (see the Errors section), calibration is stopped and the transducer symbol flashes in the display.

If the transducer response is acceptable, the calibration is terminated and the calibration symbol (inverted triangle) in the display indicates a successful calibration.

The calibration is advisable when:

1. ST stimulation is to be used (without a reference value the TW % doesn't provide objective information)
2. the transducer signal is expected to be small (e.g. in children or when monitoring the Orbicularis Occuli muscle).

b. TOF-Watch S/SX Calibration sequences.

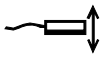
c. Calibration sequence 1:

Calibration of acceleration transducer sensitivity at user set current/charge (200 or 300 μs pulse width) by using minimum 5 sec. of single twitch stimulation with 500ms repetition rate (2Hz). Identical to current calibration sequence in TOF Watch.

d. Calibration sequence 2:

Determination of supramaximal stimulation threshold (at 200 or 300 μs pulse width) followed by calibration of acceleration transducer sensitivity at "threshold + 10%" (at same pulse width). Both are done by using a number of 1 Hz stimulations.

7. Error messages

Flashing acceleration transducer 

Transducer signal: - unstable
- too low
- too high

This error can only happen when the TOF-Watch is being calibrated or when the read-out exceeds 140%.

Transducer signal too low:

- first check the movement of the thumb: is it moving and what is the direction?
- then make sure the transducer's movement is perpendicular to the thumb movement; furthermore the transducer should not be positioned too high since the end of the thumb is not always vertical but often bents horizontally
- check the stimulation current and adjust if necessary
- for neonates and infants: it is possible that the thumb movement is not sufficient; a spatula could be used to extend the thumb, the transducer installed at the end of the spatula.

Transducer signal too high:

- the movement of the thumb is too high; the transducer should be positioned nearer to the thumb base
- the thumb is hitting something (large deceleration)

Transducer signal unstable:

- is the transducer fixed properly?
- external movements could have moved the hand
- the thumb should be moving freely; the remaining fingers should be well taped away

Flashing  or 

(surface/needle electrode connection)

Means missing or bad surface- or needle-electrode connection. The cable may be defect.

How to test if the cable is OK?

- check that stimulation current is above 10 mA (2μC) in case of surface electrodes, or 1 mA (0.04 μC) for the needle electrodes (local anesthesia)
- hold both connectors with the surface against each other
- perform a repetitive 1 Hz stimulation; if the symbol keeps flashing, the cable is defective

Flashing  or 

(flashing surface/needle electrode)

Indicates too high a skin resistance:

- can be caused by a poor quality of electrodes
- the skin is not cleaned properly (dirty skin)

Cleaning of the skin with isopropyl alcohol and the use of good quality electrodes such as Neotrode will ensure a proper skin resistance.

Flashing  and 

(both surface and needle electrode symbols flashing simultaneously)

Indicates that no stimulation cable is connected to the TOF Watch (surface or needle electrode).

PTC flashing

PTC cannot be performed because all necessary conditions are not present.

This error happens when:

- PTC is performed from pause mode when 1 Hz, 0.1 Hz or TOF have not been not equal to 0 in the last 15 seconds:
- - use TOF stimulation (if 0 responses, do a PTC)
- When the patient has 5 or more responses during the 15 single twitch stimulations preceding the tetanic stimulation:
- - use TOF stimulation
- - stop the external noise (movements) of the hand
- When PTC is activated before the time-out period of 2 minutes is over.

TOF-Watch automatically excludes the use of the PTC button for 2 minutes after successful operation of PTC or TET. If activated before the time-out period has expired, an attention beep will sound. If no other stimulation is running (device in stop-mode) PTC will be shown flashing for 5 seconds.

TET flashing

Till 2 minutes after a TET or PTC stimulation the use of TET is excluded. If activated before the time-out period has expired an attention beep will sound. If no other stimulation is running (device in stand-by mode) TET will be shown flashing for 5 seconds.

Battery Empty / Low 

Replace the battery by a new 9V high quality alkaline or NiCd (nickel-cadmium) battery.

Notice that when switching the TOF-Watch on and prior to every stimulation, the battery voltage is measured.

Internal Error

The self-tests have detected an error in the device. 

8. Cleaning advice for TOF-Watch/S/SX

The TOF-Watch/S/SX case, overlay and display may be cleaned with a damp cloth; mild cleaning agents or alcohol can be applied to above-mentioned parts.

Thorough cleaning of the device can be achieved by using a cloth moistured with either 70% ethanol, methanol, a chlorohexidine solution or 0.5% hypochlorite.

Other chemical cleaners may damage the case finish and are not recommended.

Do not use abrasive cleaners, as these will damage the surface.

Do not allow liquid to enter the case.

III. Regulatory information

1. GENERAL INFORMATION

Organon Ireland Limited is EN ISO 13485 certified for medical devices. All TOF-Watch-devices comply with world wide registration requirements including FDA and CE (Medical Device Directive (MDD)) rules.

The TOF-Watch devices are classified as Class IIA devices by EU MDD and as Class II by FDA.

The CE certificate is in accordance with the requirements of:

Annex V, section 3.2 - Production Quality Assurance of Council Directive 93/42/EEC concerning Medical Devices.

The TOF-Watch devices comply amongst others with:

EN 60601-1 Electromedical devices; General Safety

IEC 601-2-10; 60601-1-2. Particular requirements for the safety of nerve and muscle stimulators EN Electromedical devices; Electromagnetic Compatibility.

Complete registration information and documentation file is available at the Global Regulatory Affairs department.

2. ON CE-Marking

From June 13 1998 all medical devices sold in the European Economic Area (EEA) have to carry a CE mark.

On January 1st 1995 new regulations were brought into being, European Medical Devices Directive 93/42/EEC, establishing standards for the approval and monitoring of medical devices, covering all aspects from design and clinical investigation to manufacturing and post market surveillance.

These regulations have replaced existing (not only) regulatory requirements in individual countries and establish a pan-European system for regulating devices to ensure the same high degree of protection for patients wherever they live. It applies to all medical devices sold in the EEA, regardless of their country of origin. Manufacturers must ensure that products meet specific requirements, gaining third party approval in the case of the more complex devices, and affix the CE mark to confirm that a product meets the required standards.

Using different requirements for products that are placed on the European market hinders the free movement of goods and services within the EU.

In order to avoid these problems the new approach directives have been established.

Harmonized standards have to be used to avoid re-inspection and the trade barriers in the different countries.

The Medical Device Directive (MDD) is such a new approach directive that impose essential requirements on products concerning safety, health, environmental and consumer protection.

To show that a product complies with the new approach directive the CE mark is fixed.

CE stands for Conformité Européenne

The period between January 1 1995 and June 13 1998 was the transitional period giving the manufacturers and importers time to set in place the procedures for the new directives. During this time manufacturers could choose to comply with either the old or the new regulations.

a. Establishing standards

The new directive encompasses all medical devices from syringes and blood bags to drug delivery systems and monitoring equipment and classifies devices into groups according to the "risk" to the patient involved with any potential failure of the device. Class I is the lowest category and is for the least risk carrying devices with non-sterile, non-measuring functions, and Class III covers the highest risk categories with complex functions such as drug delivery systems.

b. Third party assessors

Although some devices in Class I are approved and awarded the CE mark on the responsibility of the manufacturer, devices covering more critical areas have a more rigorous approval procedure, compliance is considerably more demanding and requires external validation. All third party assessors, called 'Notified Bodies', must adhere to regulations specified in the directive for which they are appointed and can only be appointed to such a position after gaining approval from their governments under the directive. A Notified Body must be a registered company within the EEA and gain approval from its own government to become a Notified Body.

A Notified Body must be independent and have the expertise, impartiality and integrity to do the job required of it. The directives lay down stringent criteria for the appointment of these bodies, and for their regular inspection by their governments.

Manufacturers can gain third party approval from any of the Notified Bodies, and once established, a Notified Body can operate anywhere in the world.

Where a notified body is involved in the production control phase according to the applicable directives, its identification number most follow the CE marking. The manufacturer or the authorised representative established in the Community affixes the identification number, under the responsibility of the notified body.

c. A transparent system

These new directives cover all aspects of the device from gaining pre-market approval to in-use monitoring. There is even incident monitoring with requirements placed on manufacturers to report incidents associated with fault or failure of a device which could cause, or did cause, serious injury or death. Such an incident is required to be reported to the government of the country in which it occurred.

It is anticipated that these directives will offer an open and transparent system of approval and monitoring of medical devices, and should help to ensure that standards are maintained throughout Europe, regardless of the country or area of use.

3. Declarations of conformity

Declaration of Conformity

The manufacturer or authorised representative established within the Community must draw up an EC declaration of conformity as part of the conformity assessment procedure provided for in the New Approaches Directives.
The EC Declaration of Conformity should contain all relevant information to identify the Directives according to which it is issued, as well as the manufacturer, the authorised representative, the notified body if applicable, the product, and where appropriate a reference to harmonized standards or other normative documents.

IV. Technical information

1. SPECIFICATIONS COMPARISON

The table below gives a quick overview and comparison between the functions of the TOF Watch, TOF-Watch S and TOF-Watch SX.

Device	TOF-Watch	TOF-Watch S	TOF-Watch SX
Stimulation patterns (Monitoring)			
TOF	X	X	X
PTC	X	X	X
1 Hz	X	X	X
0.1 Hz	X	X	X
DBS (3.3 or 3.2)	X	X	X (see P button)
TET (50 or 100 Hz)	X	no	X (see P button)
TOF ^{s} (TOF stimulation, programmable repetition time)	no	X (1-60 min)	X (1-60 min)
P (user programmable button) (functions programmable)	no	no	yes (DBS, TET, OFF)
Stimulation current range (impedance)	0- 60 mA, (≤5 KOhm)	60 mA (≤5 KOhm)	60 mA (≤5 KOhm)
Stimulation pulse width	200 μs	200 or 300 μs	200 or 300 μs
Acceleration transducer	yes	yes	yes
Calibration of acceleration transducer sensitivity	1 mode - auto	2 mode - auto	2 mode - auto
Manual sensitivity adjustment	no	yes	yes
User programmable TOF & TOF ^{s} alarms (limits)	no	no	2 (upper & lower) (OFF, count or % TOF)
User programmable alarm: ON/OFF	no	no	yes
Automatic power switch off (after 2 hours of no operation)	yes	yes	yes
Surface temperature sensor	no	no	yes (20 - 41.5 ^{o}C)
Data dump from device	no	no	yes (Fiber-Optical line)
Nerve location - LA (1 Hz stimulation) (Current range, impedance) (Pulse width)	Yes (0 - 6 mA, ≤5 KΩ) (40 μs)	Yes (0 - 6 mA, ≤5 KΩ) (40 μs)	Yes (0 - 6 mA, ≤5 KΩ) (40 μs)

2. Test procedure

a. Routine check procedure

The TOF-Watch/S/SX is designed with all possible self-checking controls to ensure optimum safety. However in many hospitals, a daily routine is in place to check all monitoring devices in the operation room (OR) or intensive care unit (ICU) before connection and initiation.

a.1 For surface stimulation:

1. Check that the surface electrode current is above 10 mA or 2.0µC.
2. Short-circuit the electrode connectors.
3. Start a 1 Hz repetitive stimulation and see that no errors occur.
4. If acceleration transducer is present: shake the transducer and observe random changing percent (%) readouts in display.
5. Open the electrode short-circuit and observe that the TOF-Watch/S/SX stops the current stimulation, flashes “bad surface electrode connection” symbol in the display and gives a double beep.

a.2 For needle electrode stimulation (loco-regional anesthesia):

1. Check that the needle electrode current is above 1 mA or 0.04µC.
2. Short-circuit the electrode connectors.
3. Start a 1 Hz repetitive stimulation and see that no errors occur.
4. Open the electrode short-circuit and observe that the TOF-Watch/S/SX continues stimulation and gives a double beep each time stimulation is carried out; the “bad needle electrode connection” symbol is flashing in the display.

b. Technical check procedure

If regular checks of neuromuscular monitoring devices are required within national legislation is it recommend that these checks be carried out at an annual basis at least.

The person carrying out a check shall by means of his education, knowledge and practical experience be qualified to carry out such work.

1. Check the overall condition of the instrument for mechanical defects, which might influence on the performance and safety of the device.
2. Check the overall condition of the accessories for mechanical defects, which might influence on the performance and safety of the device.
3. Check that the user manual / device record are available and in such a condition that the proper use of these are possible.
4. Check that relevant safety information on the device labeling is readable.
5. Check that the condition of the used battery is sufficient to carry out normal operation of the device.

Connect a 1000 Ohm (+/- 1%) resistor to the surface electrode stimulation cable and connect an oscilloscope across the two terminals of the resistor. Connect the surface electrode stimulation cable and the acceleration transducer cable to the TOF Watch.

6. Switch the device ON and check that all functions and associated display information are functional and as described in the user manual.
7. Adjust the current setting to the maximum current (60 mA) and start a “1 Hz” stimulation. Check by means of the connected oscilloscope that the peak to peak voltage across the 1000 Ohm resistor is equal to 60 Volt, tolerance +/-10%.
   Check that the pulse width of the stimulation pulse equals 200 μS (300 μS), tolerance +/-15% (measured from 50% to 50%).
8. Decrease the stimulation current gradually and see that the amplitude of the stimulation voltage also decreases gradually.
9. Check that there is no read-out of acceleration transducer signal when the acceleration transducer is kept complete still during stimulation and that a reading is present if the acceleration transducer is shaken during a stimulation.

Connect a 1000 Ohm (+/- 1%) resistor to the LA stimulation cable and connect an oscilloscope across the two terminals of the resistor. Connect the LA stimulation cable to the TOF Watch.

10. Adjust the current setting to the maximum current (6 mA) and start a “1 Hz” stimulation. Check by means of the connected oscilloscope that the peak to peak voltage across the 1000 Ohm resistor is equal to 6 Volt, tolerance +/-10%. Check that the pulse width of the stimulation pulse equals 40 μS, tolerance +/-15% (measured from 50% to 50%).
11. Decrease the stimulation current gradually and see that the amplitude of the stimulation voltage also decreases gradually.

The results of the above-described tests must be recorded (see from on next page) and filed (device record).

If any of the above tests cannot be successfully passed must the device be repaired or the user of the device must be notified that the functionality and/or safety of the device are impaired.

c. Technical check record form

Manufacturer: Organon Ireland Ltd. Drynam Road Swords Co Dublin Ireland	**Model:** **TOF Watch** **SN:**
Distributor:	
Customer:	
Location:	

	Functional and safety check	**Tested**
1.	Overall condition of device	
2.	Overall condition of accessories	
3.	User manual / device record	
4.	Readability of relevant safety information on device	
5.	Battery voltage	
6.	Functional test	
7.	Stimulation current - neuromuscular monitoring	
8.	Current adjustment - neuromuscular monitoring	
9.	Acceleration transducer	
10.	Stimulation current - LA	
11.	Current adjustment - LA	

Date :

Signature/stamp:

V. Other Useful information

For further information on service and maintenance please consult the ***Operating Manuals*** included in the sales package or contact the Marketing Anesthesia of Schering-Plough

VI. APPENDIX

1. TOF-Watch devices and accessories:

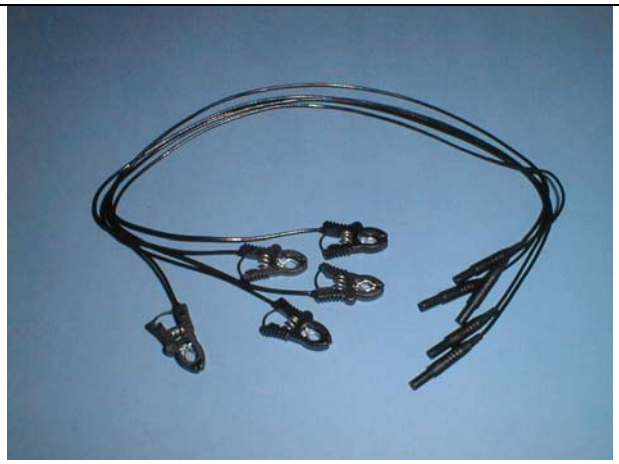
Content:

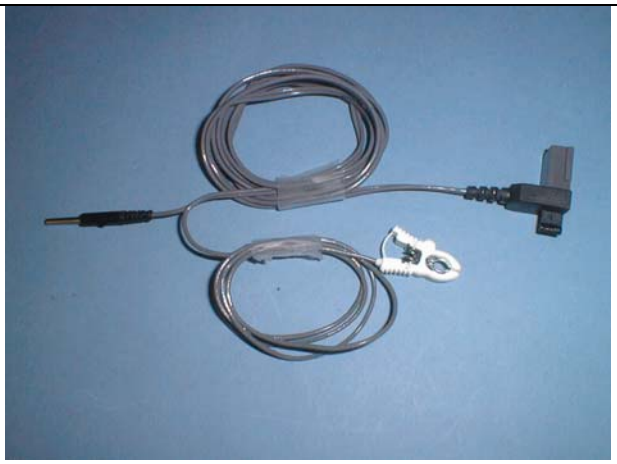
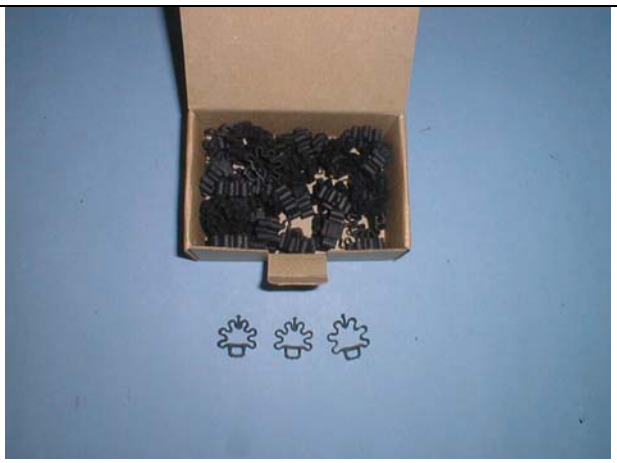
a. Devices:

ART. NO. DESCRIPTION	PICTURE
79950161 **TOF-Watch** Containing: 1 Instructions for use. 1 TOF-Watch. 1 TOF-Watch Patient cable (79950214)	
79950160 **TOF-Watch S** Containing: 1 Instructions for use. 1 TOF-Watch S 1 TOF-Watch Patient cable (79950214)	

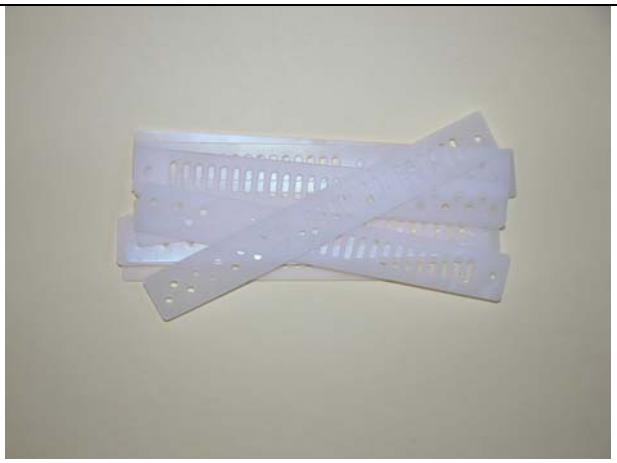
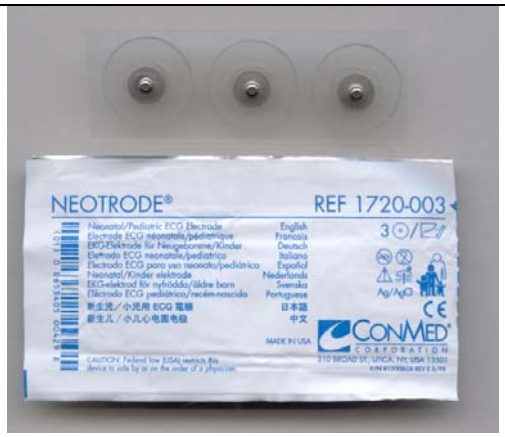
ART. NO. DESCRIPTION	**PICTURE**
79950162 **TOF-Watch SX** <u>Containing:</u> 1 Instructions for use 1 TOF-Watch SX 1 TOF-Watch SX Patient cable (79950213)	
79950157 **TOF-Watch SX + interface (Philips)** <u>Containing:</u> 1 Instructions for use 1 TOF-Watch SX 1 TOF-Watch SX Patient cable (79950213) 1 TOF-LINK RS 232 interface 1 TOF-LINK interface cable (0.25 m) (79950208)	

b. General accessories:

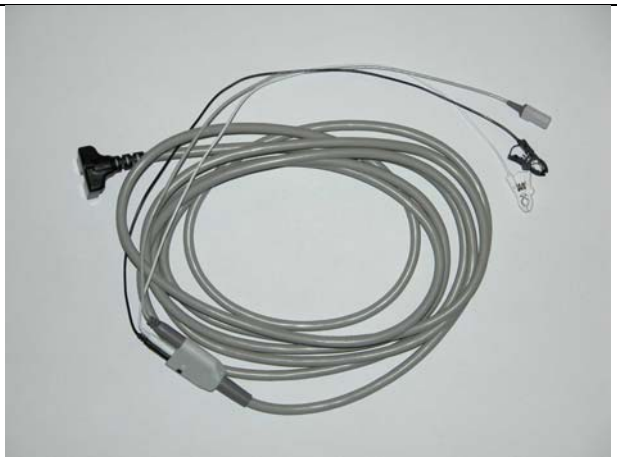
ART. NO. DESCRIPTION	PICTURE
79950074 **Negative stimulation lead (5 pcs.)** Part of all TOF-Watch sales packages and TOF-Watch complete cables.	
79950075 **Positive stimulation lead (5 pcs.)** Part of all TOF-Watch sales packages and TOF-Watch complete cables.	
79950163 **TOF-Watch SX / TOF Guard acceleration transducer** Part of all TOF-Watch sales packages and TOF-Watch complete cables.	

ART. NO. DESCRIPTION	PICTURE
79950215 **TOF-Watch main cable** Part of all TOF-Watch sales packages and TOF-Watch complete cables.	
79950006 **Stimulation cable (1.5 m) for needle electrode (LA)** One lead to be connected to a surface electrode and the 2 mm (diameter) banana to be connected to a Local Anesthesia needle.	
79950152 **Thumb adapter acceleration transducer - 50 pcs.** For attaching the acceleration transducer to the thumb (without plaster). Using this adapter avoids damage to the cable when detaching the cable.	

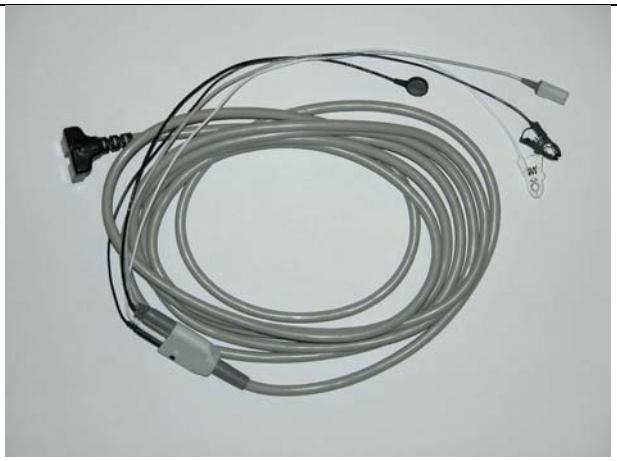
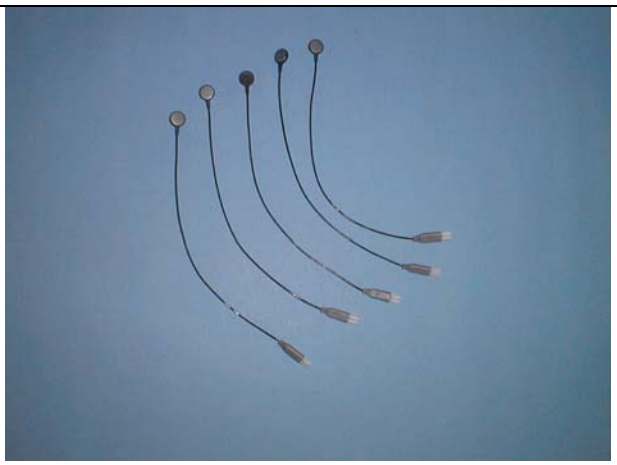
ART. NO. DESCRIPTION	**PICTURE**
79950207 **Eye adapter acceleration transducer - 50 pcs.** For attaching the acceleration transducer to the orbicularis oculi or corrugator supperciliі. Box of 50 pcs. eye adapter includes 50 pcs ready to use double sided adhesives.	
79950014 **Mounting bracket (clamp for IV-pole)** Fits all TOF-Watch devices	
79950216 **Battery lid for TOF-Watch (25 pcs)**	

ART. NO. DESCRIPTION	**PICTURE**
79950209 **Handadapter for acceleration transducer.** <u>Containing:</u> 1 Handadapter 2 Straps for handadapter (79950014)	
79950217 **Strap for Handadapter (10 pcs)** Part of article number 79950209 (2 pcs.)	
79950039 **Electrodes Neotrode (3 x 100 pcs.)**	

c. Accessories for TOF-Watch / TOF-Watch S:

ART. NO. DESCRIPTION	**PICTURE**
79950214 **TOF-Watch complete cable.** Part of article number 79950161 and 79950162. <u>Containing:</u> 1 TOF-Watch main cable (79950215) 1 Negative stimulation lead (79950074) 1 Positive stimulation lead (79950075) 1 acceleration transducer (79950163)	

d. Accessories for TOF-Watch SX:

ART. NO. DESCRIPTION	**PICTURE**
79950213 **TOF-Watch SX complete cable.** Part of article number 79950162 and 79950157 <u>Containing:</u> 1 TOF-Watch main cable (79950215) 1 Negative stimulation lead (79950074) 1 Positive stimulation lead (79950075) 1 acceleration transducer (79950163) 1 TOF-Watch SX thermistor (79950151)	
79950151 **TOF-Watch SX thermistor (5 pcs).** Part of article number 79950162 and 79950157 (1. pcs.)	

e. TOF-Link and accessories:

ART. NO. DESCRIPTION	PICTURE
79950155 **TOF-LINK USB interface incl. TOF-MONITOR program** Optical to USB adapter, cable and TOF-Watch SX Monitor program facilitates online TOF-Watch SX data capture on a Computer (desktop or laptop) <u>Containing:</u> 1 CD with TOF-Watch SX Monitor program. 1 TOF-LINK USB interface 1 TOF-LINK interface cable (3m) (79950154)	
79950154 **TOF-LINK interface cable (3 m)** Part of article number 79950155	
79950208 **TOF-LINK interface cable (0,25 m)** Part of article number 79950157	

ART. NO. DESCRIPTION	PICTURE
79950219 **TOF-Watch SX Interface RS232 adapter** Part of article number 79950157	

NOTES

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