Cable testing unit for electrosurgery accessories

Technical data and construction

Power supply connector:	100VAC – 240AC 50 / 60Hz Input current 400mA Voltage regulated, integrated current limiter Leakage current < 10uA Interchangeable primary adapter	
Nominal voltage:	15 Volt DC	
Nominal current:	0,5 A DC	
Frequence MCU:	16 MHz (MCU = micro controller unit)	
Frequence handle:	20 kHz	
Frequence K-gauging:	5 to 20 Hz	
Interface interior:	RS232 view	
Display test menu:	Hyper Terminal Rate 38400 Data bits 8 Parity none Stop bits 1 Emulation VT100	
Testing criteria:	Resistance connecting lines	< 20 Ohm
	Handle pushbuttons	< 220 Ohm
	Handle active line	< 220 Ohm
	Insulation resitance conductor to conductor	> 1 MOhm
Gauging Direction:	Instrument side	
Option	2-pole cable per side 4mm pin plus Powerstar cable	

Status display:	Orange both status displays	= Ready for operation
	Green permanent	= Test object OK
	Yellow	= CUT button confirmed
	Blue	= COAG button confirmed
	Orange / no reaction	= not connected or error
	Red / no reaction	= ERROR

Configuration:

Operations and gauging are monitored and/or conducted by a micro controller (MCU). After turning on, the MCU performs an automatic self test. All functions and test criteria with the various resistances are checked.
Sensor OPV´s (Operation amplifier)

Case:

Synthetic material with tip-up feet at the back..
Size: B 240 x T 198 x H 110 mm
Weight: 1,8 kg
Weight supply connector: 0,18 kg

Connector – positions:

* Socket also suitable for Aesculap, Martin, Berchtold, Integra and Micromed cables
NE = Neutral Electrode

Instructions

Connect power supply connector with short twist to low voltage socket with bayonet lock.
Plug power supply connector into socket. 100-240V AC possible.

On / Off switch

A visible turn-on test follows:

- All LED shine
- Thereafter the status displays LED´s shine from left to right
- 1 2 3 4
- yellow - green - blue – red
- yellow – red - blue – green
- Dummy resistance is switched into circuit in order to test sensor and OPV.

End of turn-on test:

	1	2	3	4
-		orange		orange

When status displays 2 and 4 shine orange, the turn-on and simulation test were successful.

If status display 4 blinks orange / red, there is an error at the unit side.

Cable test unit is now ready for operation.

Warning: Due to metrological reasons only one test object may be connected at a time.

Testing of neutral electrode connection cables:

Checking of various connecting cables of neutral electrodes (right side of E-accessory controller).
Choose the fitting plug-in mount for your cable and adapt first the unit side and then the instrument side.
Status display **„4"** will shine green at the test object. The test object should now be moved to the left and to the right, so as to check if there is a loose contact. At the same time, the insulation switch starts blinking.
It is now important to press the green button **Insulation** in order to do the insulation check from conductor to conductor, because there might be a short circuit inside the plug which the initial check would have failed to notice.
If the circuit is okay status display **„4"** shines green. Here please also move the test object from left to right.
Thereafter remove test object.
If the test object is not okay the status display **„4"** shines red or stays orange.
Thereafter remove test object and mark accordingly.

Testing of bipolar connection cables:

Choose the fitting plug-in mount for your cable. Thereafter proceed as before with the neutral electrode cables.

Testing of single pole connection cables:

Choose the fitting plug-in mount for your cable on the left side of the cable test unit and adapt first the unit side and then the instrument side.
Status display **„2"** will shine green if the test object is okay. The test object should now be moved about from left to right.
If the circuit is not in order the status display **„2"** will blink red or stay orange.
Thereafter remove test object and mark accordingly.

Testing of handle with two pushbuttons:

Choose the fitting plug-in mounts for your cable on the left side of the cable test unit and adapt first the unit side. Then connect the handle to the vertically positioned contact pins. These contact pins can be moved, depending on the size of the handle.
The status display **„2"** should shine green. Move the cable about. Status display **„2"** has to continually shine green.
If the cable is not in order the status display **„2"** will blink red or stay orange.
Remove test object and mark accordingly.

Activate the yellow pushbutton for CUT. The status display **„1"** will shine yellow or give no signal.

Activate the pushbutton for at least 1 second. Activate several times.

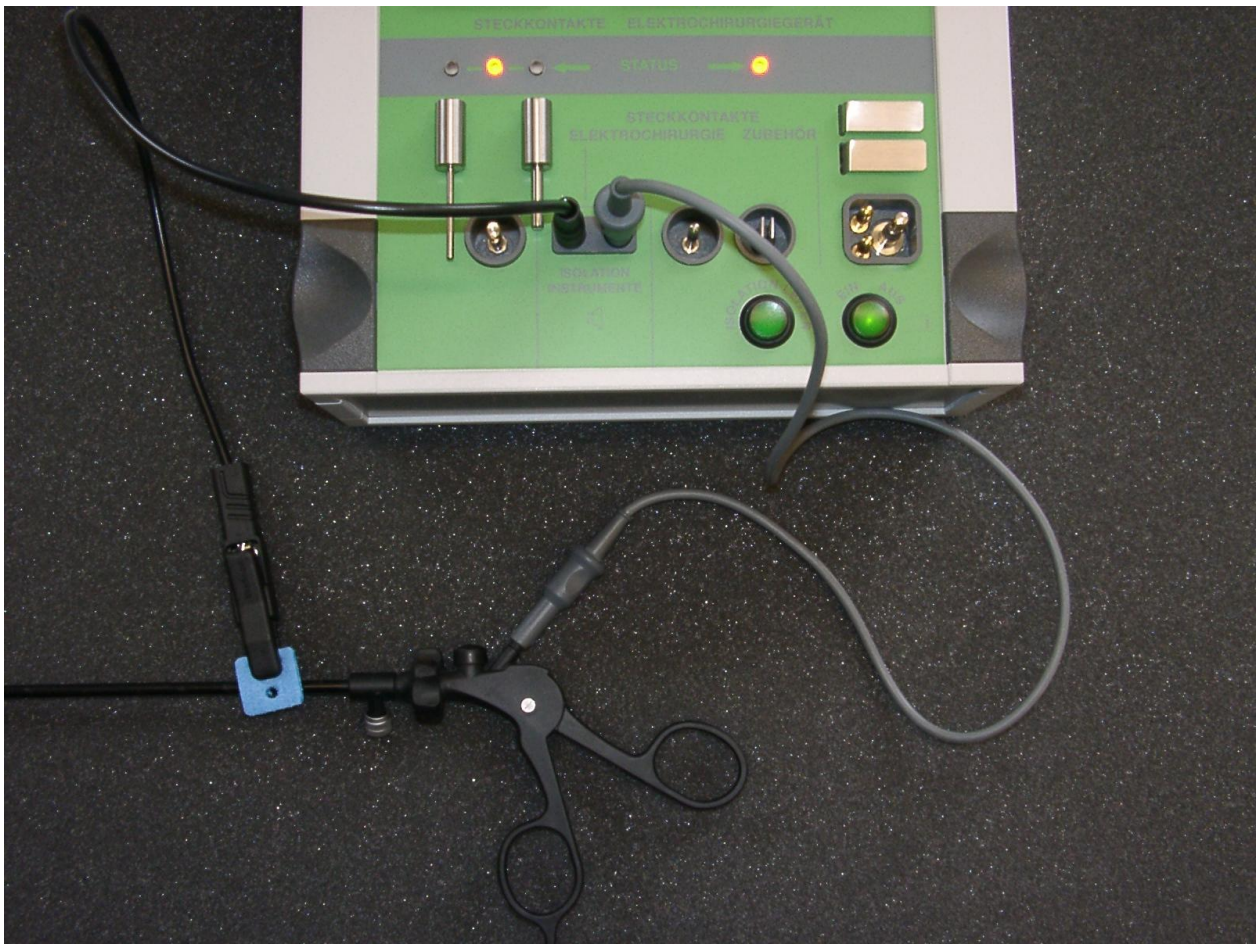
If the pushbutton is not in order the status display **„2"** will blink red or stay orange.
Remove test object and mark accordingly.

Activate the blue pushbutton for COAG. The status display **„3"** will shine blue or give no signal.

Activate the pushbutton for at least 1 second. Activate several times.

If the pushbutton is not in order the status display **„2"** will blink red or stay orange.
Remove test object and mark accordingly.

Testing the insulation of instruments



Connect the connection cable with clamp and the instrument cable to the **"Insulation"** sockets of the cable test unit.

Saturate the sponge in the clamp with 0,90% common salt solution so as to assure optimum results.

Connect the instrument to the socket and wipe the saturated sponge over the insulation of the instrument.

If there is any damage on the insulation the unit will give an **acoustic** signal.
The common salt solution is ideal for showing up even very fine fissures.
The described test circuit is independent of other test circuits.

Environmentally relevant notice:

Packaging

Micromed Medizintechnik GmbH takes back the complete packaging material. In case you do not wish to make use of this, please dispose of the packaging material through the normal paper and household waste.

Disposal of unit

In the manufacturing process of the unit attention was paid that, as much as possible, no compound materials were used. The method of production allows a high measure of recycling. We offer to take back used units and dispose of them adequately.

We specifically point out that the guidelines of electronic waste regulation must be complied with when disposing of the unit.

Reference note

Alterations to the product, packaging or disregard of this instructions manual will result in liability exclusion of Micromed Medizintechnik GmbH.

Subject to change without prior notice.

NOTES: