URODYNAMIX TECHNOLOGIES LTD

URO-1000 Theory of Operation

URO-NIRS technology is based on the principles of near-infrared spectroscopy (NIRS).
NIRS is a non-invasive optical technique commonly used in medical diagnostics. The URO-1000 cannot be used until a single use sensor patch with RFID tag is scanned using the URO-1000's RFID reader. The patch is then used to attach the sensor cable's emitter/detector to the patient's abdomen. The NIRS emitter projects specific wavelengths of near-infrared light onto the skin to illuminate the tissues and organs beneath. The NIRS light is absorbed differently depending on a variety of factors, including the concentrations of chromophores such as hemoglobin (the iron-containing oxygen-transport metalloprotein in red blood cells) and cytochromes (membrane-bound proteins) in the blood and/or muscles. Some of the light that is not absorbed is scattered and returns to the sensor, and these changes are analyzed to provide useful clinical information.

NIRS can be used for non-invasive assessment of the bladder through the intact abdominal wall in human subjects by detecting changes in blood hemoglobin concentrations associated with bladder function. By using URO-NIRS technology to continuously monitor and detect changes in the concentrations of chromophores in the detrusor muscle (the contraction of which causes urination), valuable information can be provided to the physician to indicate the physiological activity of the bladder.

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