

AUTOMATIC NMR TESLAMETER

type RX-32

The instrument is designed for operation with any research or service apparatus involving very high precision measurements and stabilization of magnetic field. It may be considered as a standard equipment of EPR and NMR spectrometers, stands for Hall effect studies, MRI systems for field mapping and shimming, beam handling and a variety of instrumentation for studying materials with field-dependent characteristic, as well as for checking of the magnets, electromagnets, etc.

The teslameter, due to precision and repeatability of field measurement, may be used as a standard for testing the other instruments. It combines refinement of measurement with simplicity of using and allows fully automatic tracking and locking of magnetic field.

Instrument operates on a principle of the swept-frequency measurement and differs considerably from the conventional automatic NMR device which uses an external modulation of magnetic field to be measured. Due to this new technique the RX family of instruments are the fastest and most flexible teslameters available today.

FEATURES

- ⇒ Magnetic field **intensity**, relative field **homogeneity** and NMR **signal amplitude** modes of measurement.
- ⇒ **No magnetic field modulation** within or around probe; particularly important when operating with EPR/NMR spectrometers with a need for rotation of the electromagnet or MRI systems.
- ⇒ Only one, **small dimension probe** for wide range of magnetic fields.
- ⇒ **Lack of any settings**, simply turn ON instrument and read value of fully automatically and fast searched and tracked magnetic field induction.
- ⇒ Capability of **tracking of extremely fast changing magnetic fields**.
- ⇒ **Correction signal for magnetic field control** available.
- ⇒ Measurement of very low magnetic field.
- ⇒ Low cost accessories.

TECHNICAL SPECIFICATION

⇒ Field range:	
Very Low Field (VLF) probe (option)	20 mT – 36 mT
Low Field (LF) probe (option)	29 mT - 78 mT
Middle Field (MF) probe as standard	743 mT - 1910 mT *
High Field probe (option)	1500 mT - 3250 mT
⇒ Searching velocity (max.)	220 mT/sec.
⇒ Ranging	automatic or manual (seven sub-ranges for MF probe))
⇒ Tracking velocity (max.)	80 mT/sec.
⇒ Reading rate	8/sec. (0,0001 mT resolution), 30/sec. (0,001 mT resolution)
⇒ Magnetic field resolution (max.)	0,0001 mT
⇒ Magnetic field homogeneity resolution (nonlinear scale)	~ 0,15 % (0,0001 mT / cm)
⇒ NMR signal amplitude resolution	> 0,5 %
⇒ Field gradient tolerance	0,03 % / cm
⇒ Correction signal for magnetic field control	digital value plus sign from any magnetic field chosen
⇒ Probe dimensions	11,5 mm diameter, 54 mm long (VLF probe) 10,8 mm diameter, 48 mm long (LF probe) 8,2 mm diameter, 43 mm long (MF probe)
⇒ Field value display	20 characters, one line LCD with backlight
⇒ Two-way RS 232 C port (IEEE 488 as option)	for data logging & computer control (MagPro software ver. 3.1. for PC added).
⇒ Analog outputs	NMR signal (LEMO socket) reference frequency (LEMO socket)
⇒ Oven Controlled X-tal Oscillator on the board with:	
- reference frequency	10 MHz, CMOS output
- clock accuracy	0,001 ppm / day **
- clock aging stability	2 ppm / year
⇒ RF box connecting cable	300 cm
⇒ Power requirements	115 / 230 V, 30 W, 50 / 60 Hz
⇒ Dimensions	258 x 102 x 312 mm
⇒ Weight (with head)	4,9 kg

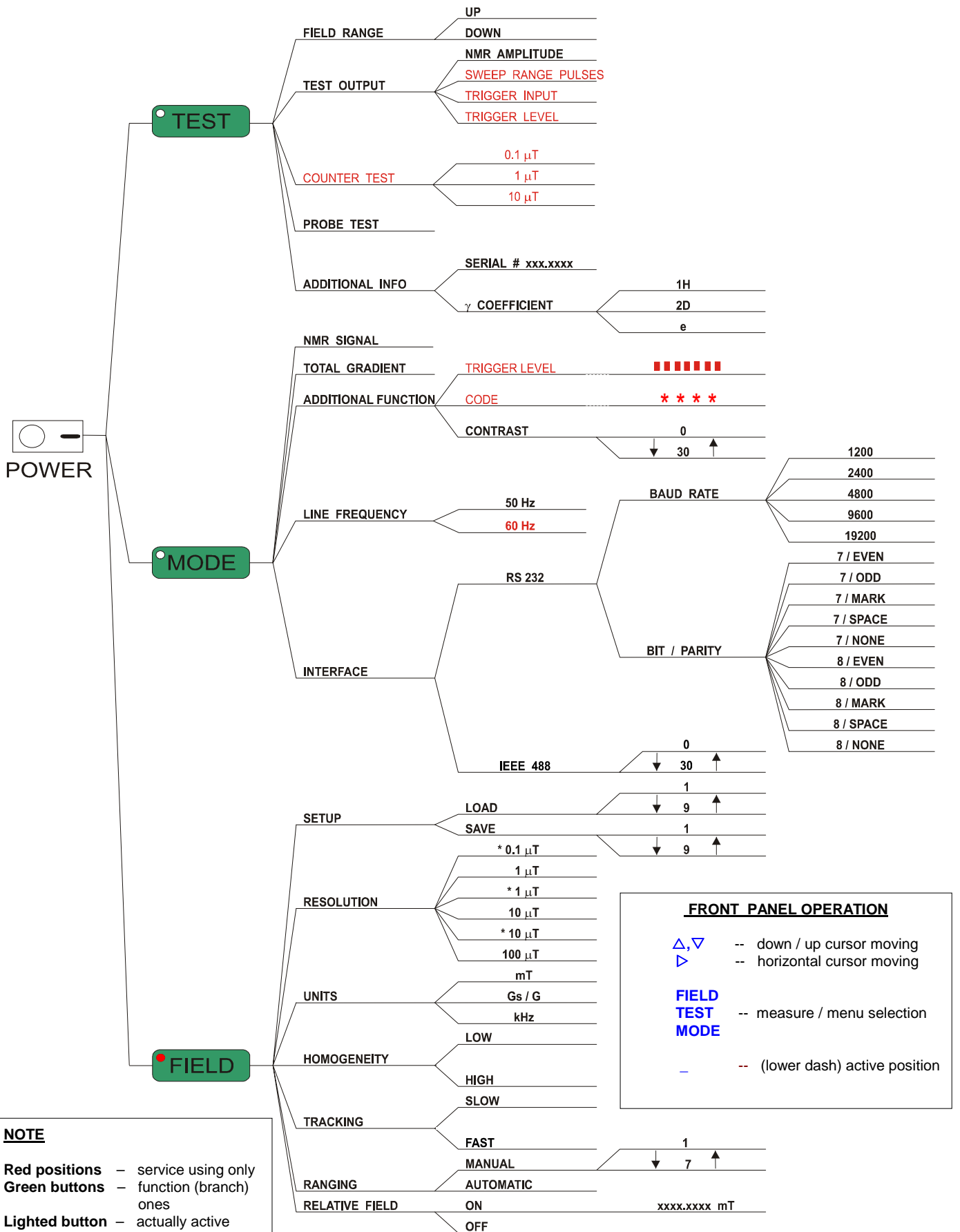
ACCESSORY OPTIONS

- Miniaturized probe: 5.0 mm diameter, 80 mm long (flexible or rigid), range 180 mT – 1200 mT
- Special holder for measuring head, placed inside of electromagnet walls, type RX - 09.
- RF box connecting cable - custom dimension (up to 30 m)

* - One probe only, seven automatic sub-ranges.

** - After 30 min. warm-up.

Menu of RX-32b



NOTE

- Red positions - service using only
- Green buttons - function (branch) ones
- Lighted button - actually active branch

* - after digital filtering

FRONT PANEL OPERATION

- △, ▽ -- down / up cursor moving
- ▷ -- horizontal cursor moving
- FIELD TEST MODE -- measure / menu selection
- -- (lower dash) active position

