

CHAPTER 1 INTRODUCTION

1-1 Description

The -TR-4120 TRACKING SCOPE is a 100Hz to 30MHz tracking analyzer.

Sweep generator and narrow band filter provide a maximum sensitivity of -130dBV and residual FM of 5Hzp-p. Moreover, a built-in tracking generator makes measurement of extremely narrow filter characteristics easy.

At the same time, the frequency indicated by a marker can be directly and digitally displayed by using in conjunction with a Takeda Riken counter.

The tracking generator can also be operated as a selective amplifier, thereby permitting selective amplification of a certain low level signal and the measurement of ON AIR signals and other carrier frequencies at counter accuracy.

The -TR-4120 employs a fan-less totally enclosed construction through the use of a small, lightweight, low power consumption design and ' can withstand extended use in the field.

SECTION 2 SPECIFICATIONS

2-1 Electrical Performance

(1) Spectrum Analyzer

Measuring range:	100Hz ~ 30MHz
Maximum input sensitivity:	-135dBV (0dBV = 1V)
Maximum permissible input level:	100Vrms, DC \pm 150V (at RF ATT. 50dB)
Input attenuator:	0dB ~ 50dB 10dB steps
Input impedance:	1MQ, less than 18pF
Frequency response:	\pm 0.5dB
Reference level:	+40dBV ~ -70dBV 10dB steps
Reference level sensitivity:	\pm 0.5dB
Dynamic range:	80dB
Level indication sensitivity:	Less than \pm 1dB (at 10dB) Less than \pm 2dB (at 80dB)
Y axis scale selection:	10dB/DIV. , 2dB/DIV. , LIN. , LIN. X5
Gain reduction:	Less than 1dB (at -20dBV input)
Spurious response	Less than -60dB (at -40dEV input)
Persistence response:	Less than -110dBV(at RF ATT. 0dB, no input)
Video filter:	10Hz, 100Hz, 10kHz, OFF
IF bandwidth:	10Hz ~ 100kHz 1, 3 steps
Bandwidth accuracy:	\pm 20%
Bandwidth selectivity:	Less than 20:1 (60dB : 3dB ratio)
IF bandwidth switching accuracy:	Within \pm 1dB (at 100kHz ~ 30Hz bandwidth) Within \pm 2dB (at 10Hz bandwidth with 10kHz as reference)
Noise level:	-95dBV (at 100kHz bandwidth) -135dBV (at 10Hz bandwidth)
Noise sideband:	More than -55dB (at 100Hz bandwidth, more than 2kHz away from carrier)
Scan width: Scan time:	50Hz/DIV. ~ 2MHz/DIV. 1, 2, 5 steps
Scan width: Scan time:	10uS/DIV. ~ 10S/DIV. 1, 2, 5 steps
Center frequency accuracy:	Within \pm 500kHz
Scan linearity:	Within \pm 10%
Stability:	5Hp-p (after automatic stabilization)
Pine tuning range:	More than 100kHz

(2) Tracking Generator

Frequency range:	100Hz ~ 30MHz
Output level: Output	-10dBm ~ -40dBm 10dB steps
level accuracy:	± 0.2 dB
S/N of output:	-30dB
Output impedance:	75 Ω
Frequency response:	± 0.25 dB
Stability:	Corresponds to stability of spectrum analyzer
A.G.C:	Responds up to 30kHz
T.G mode:	Tuned amp. Selects and amplifies a signal of more than 10dB s/N, more than -70dB CRT. display, and puts out as more than 100Vrms. Normal Puts out the frequency of the point indicated by marker.
Counter use output:	Level 100V rms Impedance 75 Ω

2-2 General Specifications

CRT display:	Scale 8DIV. X 10DIV. (1DIV. = 8mm) Square P7 afterglow
X axis output:	Approx. 4V Impedance approx. 10K Ω
Y axis output:	Approx. 2V Impedance approx. 10K Ω
Z axis output:	TTL level (blanking at LO)
Usage temperature range:	0°C ~ +40°C
Power requirements:	AC100V, 115V, 200V, 230V (set at the time of despatch) 50/60HZ Approx. 60VA