



ELECTRONIC TUBE REFERENCE

EM81

Tuning Indicator electronic tube

CONSOLIDATED TECHNICAL DATA

2 SECTIONS

CONSTRUCTION

TRIODE-TUNING INDICATOR

Green electron-beam tuning indicator for FM/AM receivers that also serves as a recording-level indicator in tape equipment.

GENERAL CHARACTERISTICS

BASE DESIGNATION	—	BASE PINS	9
NOMINAL HEATER	6.3 V / 300 mA	PARALLEL HEATER	— / —
HEATING	Indirect	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Dissimilar

SECTION RATINGS

SECTION1 Triode	
MAXIMUM PLATE VOLTAGE	300 V
Published section ratings and characteristics promoted where applicable.	

SECTION2 Tuning Indicator	
MAXIMUM PLATE VOLTAGE	300 V
MAXIMUM PLATE DISSIPATION	0.2 W
MAXIMUM CATHODE CURRENT	3 A
Published section ratings and characteristics promoted where applicable.	

The Ferranti EM81 is a green electron-beam tuning indicator for FM/AM receivers and can also serve as a recording-level indicator in tape equipment.



SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1953 La Radiotechnique

Published test conditions and operating points. Values on this page are preserved as reported by this source.

1953 LA RADIOTECHNIQUE

Section 1 · Triode

CHARACTERISTICS

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater voltage	6.3 V	Published nominal value
Heater current	300 mA	Published nominal value



SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

195X Tesla

Published test conditions and operating points. Values on this page are preserved as reported by this source.

195X TESLA

Section 1 · Triode

CHARACTERISTICS

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater voltage	6.3 V	Published nominal value
Heater current	300 mA	Published nominal value



1963 Philips Electron Tubes Handbook V1a

Published test conditions and operating points. Values on this page are preserved as reported by this source.

1963 PHILIPS ELECTRON TUBES HANDBOOK V1A

Section 2 · Tuning Indicator

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Supply voltage	250 V	Indicator
Indicator voltage	250 V	Indicator
Anode resistor	0.5 M0hm	Indicator
Grid resistor	3 M0hm	Indicator
Grid voltage	-1 V	Indicator
Grid voltage	-10.5 V	Indicator
Shadow angle	65 deg	GridVoltage=-1V
Shadow angle	5 deg	GridVoltage=-10.5V
Plate current	0.37 mA	GridVoltage=-1V
Plate current	0.02 mA	GridVoltage=-10.5V
Indicator current	2 mA	GridVoltage=-1V
Indicator current	2.3 mA	GridVoltage=-10.5V



TUBE TINKER
ELECTRON TUBE DATABASE

SOURCE DATA APPENDIX

1967 Mullard Receiving and Amplifying Valves

Published test conditions and operating points. Values on this page are preserved as reported by this source.

1967 MULLARD RECEIVING AND AMPLIFYING VALVES

Section 2 · Tuning Indicator

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
III	300 mA	Published in approved EM81 target datasheet entry; Section1
It 2.0	2.3 mA	Published in approved EM81 target datasheet entry; Section1
PMmax	200 mW	Published in approved EM81 target datasheet entry; Section1
Ik max	3 mA	Published in approved EM81 target datasheet entry; Section1



SOURCE DATA APPENDIX

SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1999 Philips E-Z

Published test conditions and operating points. Values on this page are preserved as reported by this source.

1999 PHILIPS E-Z

Section 2 · Tuning Indicator

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Published electrical datum	250 v	V _y = 250 v
Published electrical datum	250 v	V _y = 250 v
Published electrical datum	0.5 MQ	R _a & 0,5 MQ
Published electrical datum	—	V _g =7 -10,5'V
Published electrical datum	0.02 mA	I _g = 0,37 0,02 mA
Published electrical datum	2.3 mA	I _y = 2,0 2,3 mA
Published electrical datum	250 V	V _i =250V
Published electrical datum	—	V _{yr} (V)—15 —10 =5 0

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Published electrical datum	0.2 W	W _a = max. 0,2 W
Published electrical datum	550 V	V _{i o} = max. 550 V

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Published electrical datum	3 ma	I _y = max. 3 ma
Published electrical datum	100 V	V _{it} = max., 100 V
Published electrical datum	20 kΩ	R _{gr} = max. 20 kΩ
Heater voltage	6.3 V	Nominal heater rating
Heater current	300 mA	Nominal heater rating

TUBE TINKER

An independent reference for electronic tubes, vacuum tubes,
and their source documents.

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