



D-EM1R-X Evaluation Module

D-EM1R-X – Specification

The evaluation module D-EM1R-X is designed to simplify testing procedure of the photodetectors, e.g. DEPHAN D-105-RC-X series. It provides filtered external power supply for the plugged photodetector and wide-bandwidth readout of its output signal, which is amplified and matched with the 50Ω load, e.g. oscilloscope input.

D-EM1R-SM1 variation includes adapter to a standard SM1 thread of 1" lens tubes.

Absolute maximum ratings

Parameter	Symbol	Value	Unit
Operating conditions*	T_{opr}	-20 .. +60	°C
Storage conditions*	T_{stg}	-20 .. +80	°C
Photodetector voltage	$V_{det,max}$	100	V
Photodetector DC current, RMS	$I_{det,max,dc}$	5	mA
Photodetector AC current, RMSD	$I_{det,max,ac}$	2.5	mA

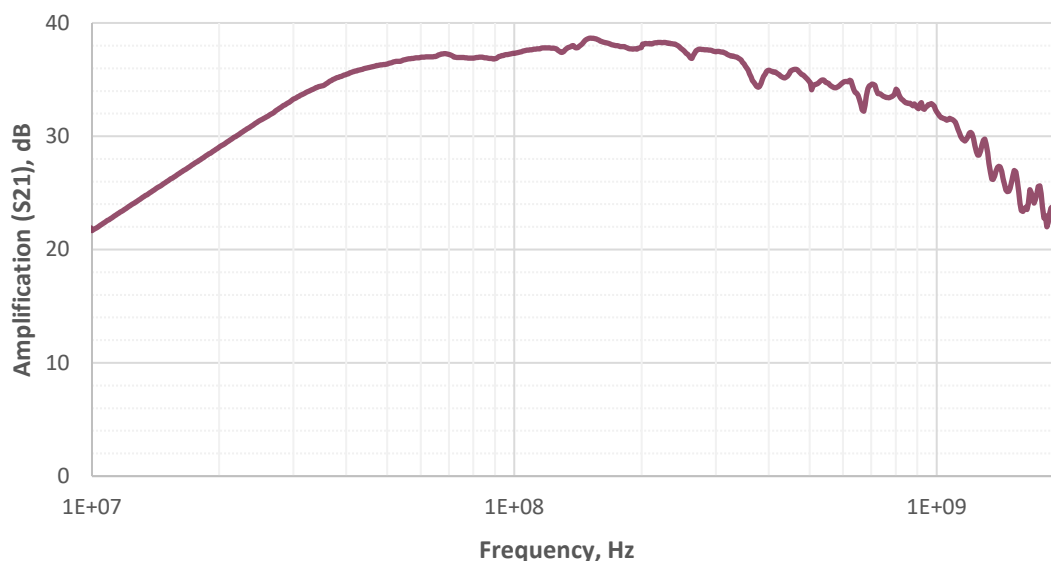
* no condensation

Electrical characteristics ($T_a = 25^\circ\text{C}$)

Parameter	Symbol	Value	Unit
Power injector series resistance	R_{inj}	20	kΩ
Amplifier power supply voltage	V_{sup}	12.0 ± 0.5	V
Amplifier power supply current	typical	$I_{sup,typ}$	130
	maximum	$I_{sup,max}$	150
Amplifier input resistance (AC)	R_{in}	50	Ω
Amplifier linearity range (3dB drop)	$I_{in,lin,max}$	0.5	mA
	$V_{out,lin,max}$	1.25	V
Output voltage noise, RMS	ΔV_{noise}	< 3	mV
Output load resistance	R_{load}	50	Ω

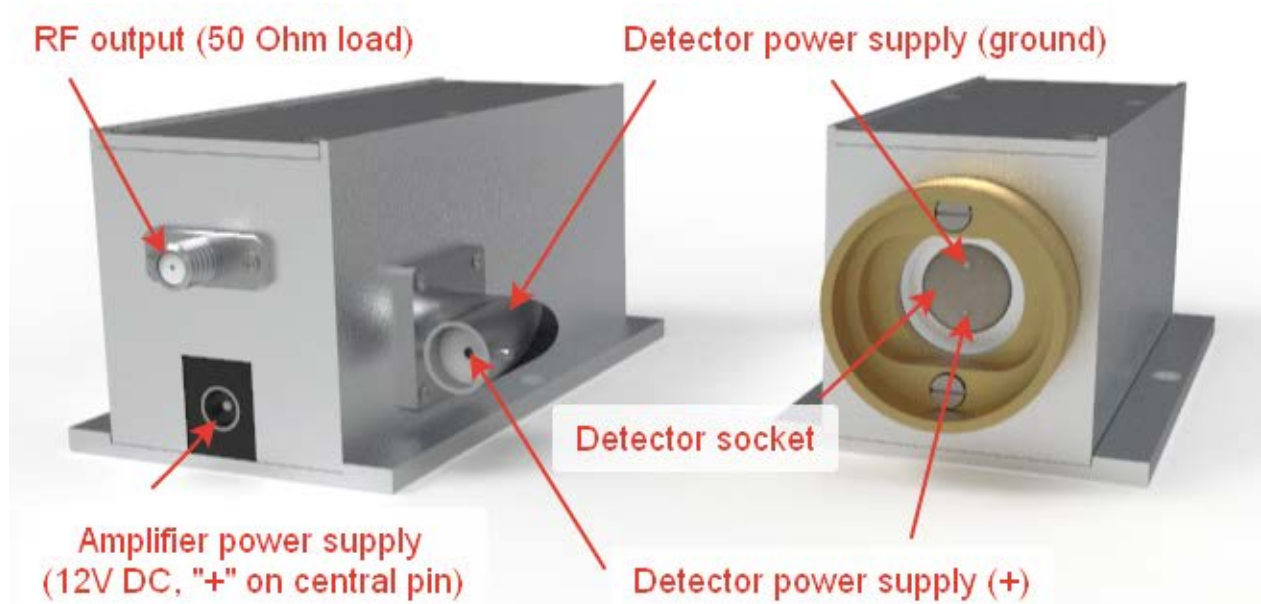
IMPORTANT: Series resistance in power injection circuit causes photodetector voltage drop by 2V per every 100μA of DC current. Corresponding correction must be applied at source.

Amplifier gain-frequency characteristic



Connection information

- DS-201: amplifier power supply (12.0 ± 0.5 V)
- BNC: photodetector power supply (100V max)
- SMA: amplified output (50 Ω load)
- Detector socket (see below): DUT (TO-5 or compatible package)
- (*D-EM1R-SM1 only*) SM1 (1.035"-40) external thread: lens tube



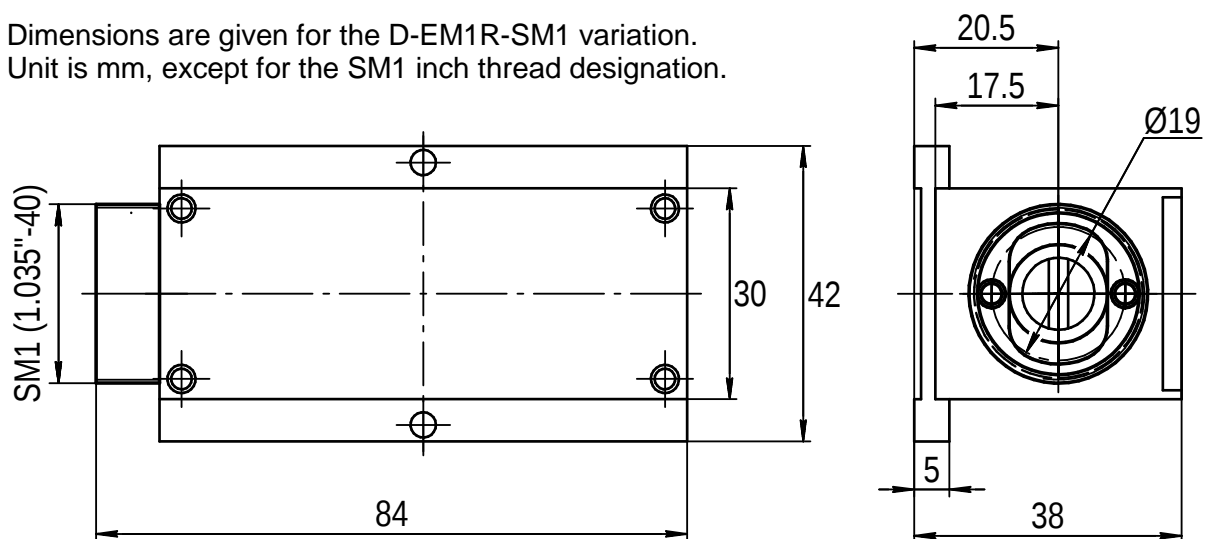
Precautions

- Never connect or disconnect anything to the module when power is applied to the module.
- Never touch photodetector or socket contacts when power is applied to the module.
- Never apply power to the module without photodetector installed in the detector socket.
- Never apply power to the module without 50 Ω load connected to the RF output (SMA).

Power is considered applied to the module when there is voltage on either photodetector (BNC) or amplifier (DS-201) power connector. Some PSUs may retain residual voltage even when off.

Dimensional outline

Dimensions are given for the D-EM1R-SM1 variation.
Unit is mm, except for the SM1 inch thread designation.



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