



## D-EM2R-X Evaluation Module

### D-EM2R-X – Specification

The evaluation module D-EM2R-X is designed to simplify testing procedure of the photodetectors, e.g. DEPHAN D-105-RC-X series. It provides power source 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-EM2R-SM1 variation includes adapter to a standard SM1 thread of 1" lens tubes.

**WARNING:** This evaluation module cannot be used in applications with high levels of background light due to series resistance in power injection circuit (see below).

### Absolute maximum ratings

Parameter	Symbol	Value	Unit
Operating conditions	$T_{opr}$	-20 to +60°C, no condensation	-
Storage conditions	$T_{stg}$	-20 to +80°C, no condensation	-
Photodetector DC current, RMS	$I_{det,max,dc}$	5	mA
Photodetector AC current, RMSD	$I_{det,max,ac}$	2.5	mA

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

Parameter	Symbol	Value	Unit
Power injector series resistance	$R_{inj}$	10	kΩ
Input power voltage	$V_{in}$	$5.0 \pm 0.5$	V
Input power current, typical	$I_{typ}$	185	mA
Input power current, max	$I_{max}$	250	mA
Input resistance (AC)	$R_{in}$	50	Ω
Amplification, typical	$S_{21}$	30	dB
Amplifier linearity range (3dB drop)	$I_{in,lin,max}$	0.5	mA
	$V_{out,lin,max}$	1.25	V
Output voltage noise, RMS	$\Delta V_{noise}$	< 5	mV
Output load resistance	$R_{load}$	50	Ω

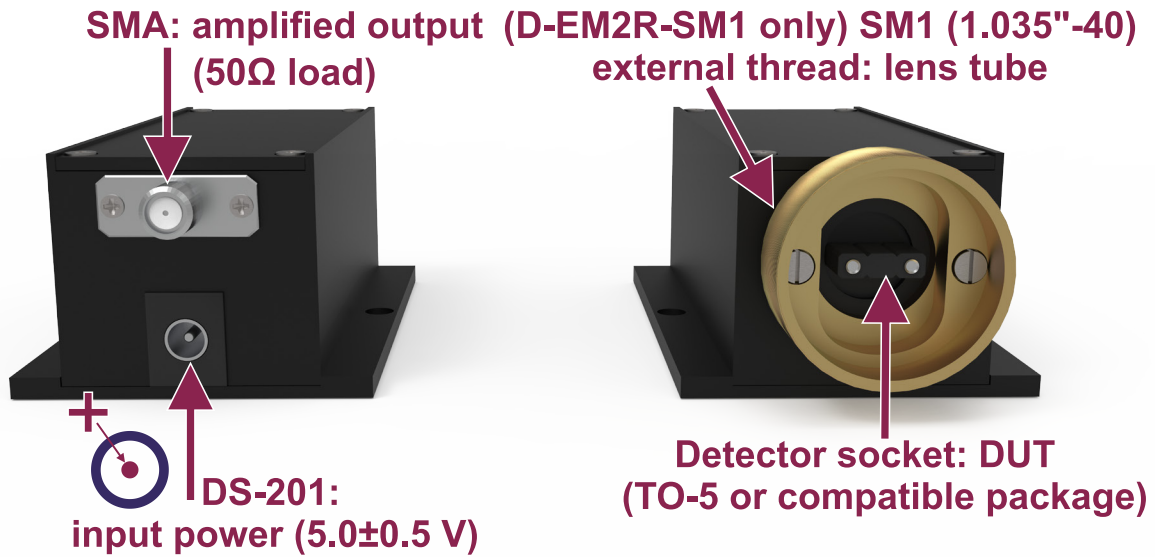
**IMPORTANT:** Series resistance in power injection circuit causes photodetector voltage drop by 1V per every 100μA of photodetector DC current, affecting photodetector gain and sensitivity. Maximum tolerable background light level depends on photodetector A/W sensitivity and voltage tolerances, please refer to photodetector specification in order to obtain these values.

### Connection information

- DS-201: input power (5.0±0.5 V)
- SMA: amplified output (50Ω load)
- Detector socket (see below): DUT (TO-5 or compatible package)
- (*D-EM2R-SM1 only*) SM1 (1.035"-40) external thread: lens tube

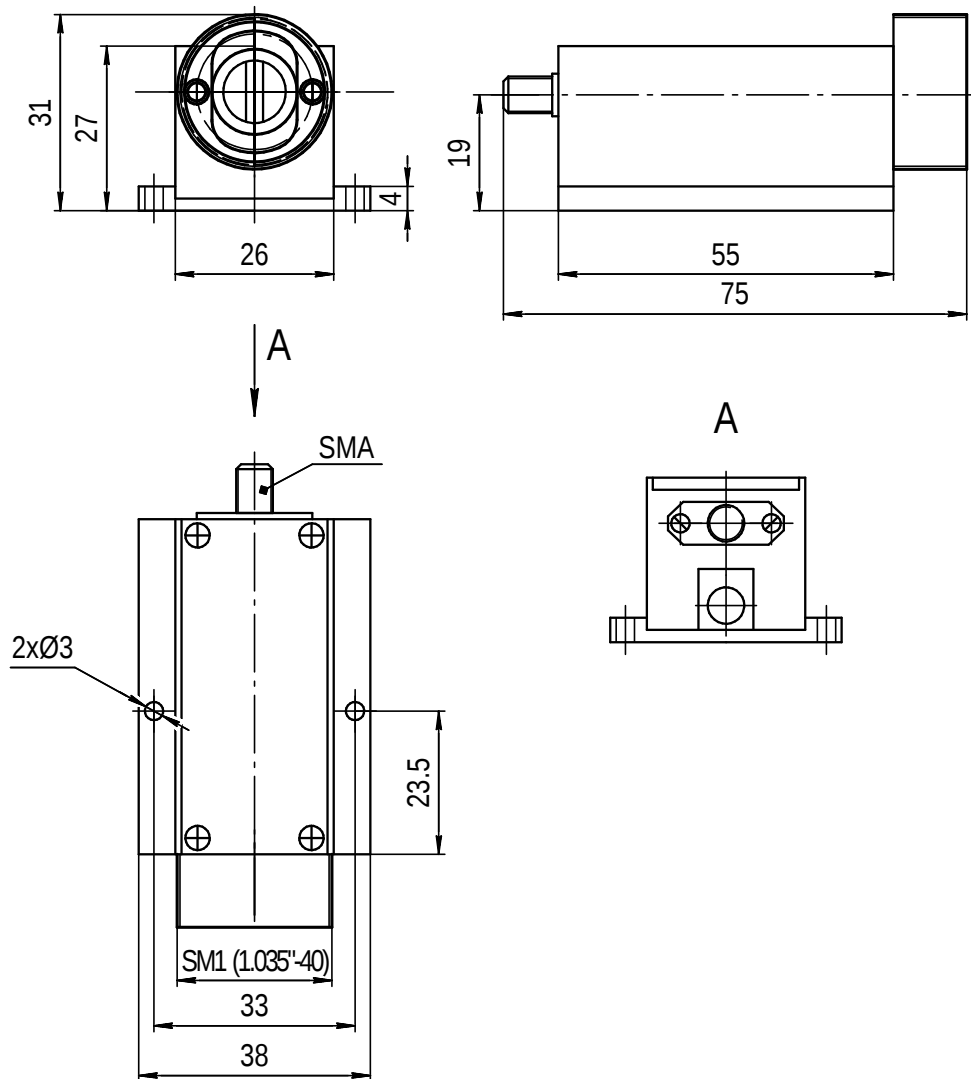
### Precautions

- Never connect or disconnect anything to the module when power is applied to the module.
- Never touch the 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 50Ω load connected to the RF output (SMA).



### Dimensional outline

Dimensions are given for the D-EM2R-SM1 variation.  
Unit is mm, except for the SM1 inch thread designation.



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