

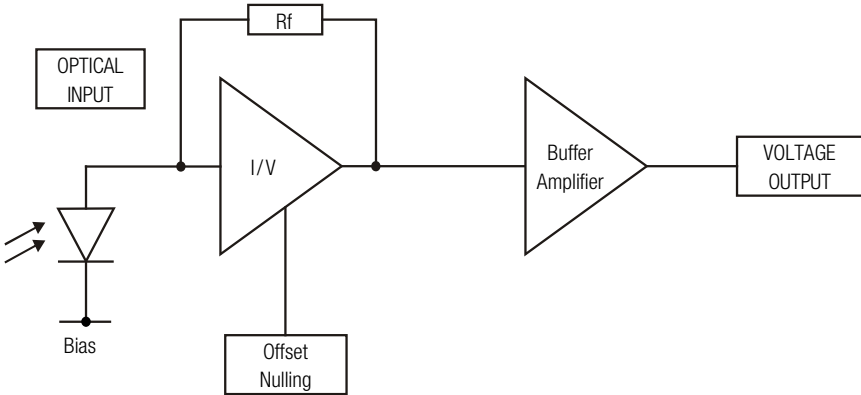
Datasheet

LCA-S-400K-SI

Low Noise 400 kHz Photoreceiver
with Si-PIN Photodiode



The picture shows model LCA-S-400K-SI-FS.
The photoreceiver will be delivered without post holder and post.

Features	<ul style="list-style-type: none">• Large area Si-PIN photodiode, 3.0 mm active diameter• Bandwidth DC – 400 kHz• Amplifier transimpedance gain 1.0×10^7 V/A• Max. conversion gain 5.9×10^6 V/W @ 920 nm• Spectral range 320 – 1060 nm• Free-space input 1.035"-40 threaded, alternatively 25 mm diameter unthreaded• Easily convertible to fiber optic input (FC and FSMA) with optionally available screw-on adapters• UNC 8-32 and M4 tapped holes for mounting on standard posts with metric and imperial thread
Applications	<ul style="list-style-type: none">• Spectroscopy• General purpose opto-electronic measurements• Optical front-end for oscilloscopes, A/D converters and lock-in amplifiers
Block Diagram	<div><p>The block diagram illustrates the internal circuitry of the photoreceiver. It begins with an 'OPTICAL INPUT' which is coupled to a photodiode. The photodiode is connected to a biasing circuit labeled 'Bias'. The output of the photodiode is fed into the inverting input of an 'I/V' (transimpedance) amplifier. The feedback path of this amplifier is a resistor labeled 'Rf'. An 'Offset Nulling' input is also connected to the inverting input. The output of the I/V amplifier is then passed through a 'Buffer Amplifier' to produce the final 'VOLTAGE OUTPUT'.</p></div> <div>BS01-LCA-S_R01</div>

Low Noise 400 kHz Photoreceiver with Si-PIN Photodiode

Available Versions

LCA-S-400K-SI-FST



Picture shows 1.035"-40 threaded flange with internally threaded coupler ring (outer diameter 30 mm)

1.035"-40 threaded flange for free space applications, compatible with many optical standard accessories and for use with various types of fiber connector adapters.

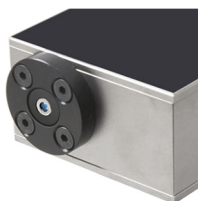
Optionally available:

Fiber adapters PRA-FC, PRA-FCA and PRA-FSMA.

The coupling efficiency will depend on fiber type.

With the relative large 3.0 mm dia. photodiode installed in the LCA-S-400K-SI input coupling is not critical. However, standard SM 9/125 fibers (PC or APC) with low numerical aperture (NA) are recommended for ensuring near 100% coupling efficiency.

LCA-S-400K-SI-FS



Picture shows unthreaded flange with 25 mm diameter

25 mm dia. unthreaded flange for free space applications. Compatible with many optical standard accessories.

Related Models

LCA-S-400K-IN-FST

InGaAs-PIN, Ø 0.5 mm, 900 - 1700 nm free space input, 1.035"-40 threaded flange

LCA-S-400K-IN-FS

InGaAs-PIN, Ø 0.5 mm, 900 - 1700 nm free space input, 25 mm dia. unthreaded flange

Available Accessories

PRA-FC
PRA-FCA
PRA-FSMA



Fiber-adapter with external 1.035"-40 thread (suitable for FST models only).

PRA-PAP



Alternative mounting option:
Post adapter plate, easy to mount on FEMTO photoreceiver series OE, FWPR, PWPR, HCA-S and LCA-S.

PS-15-25-L

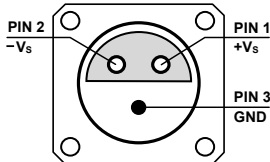
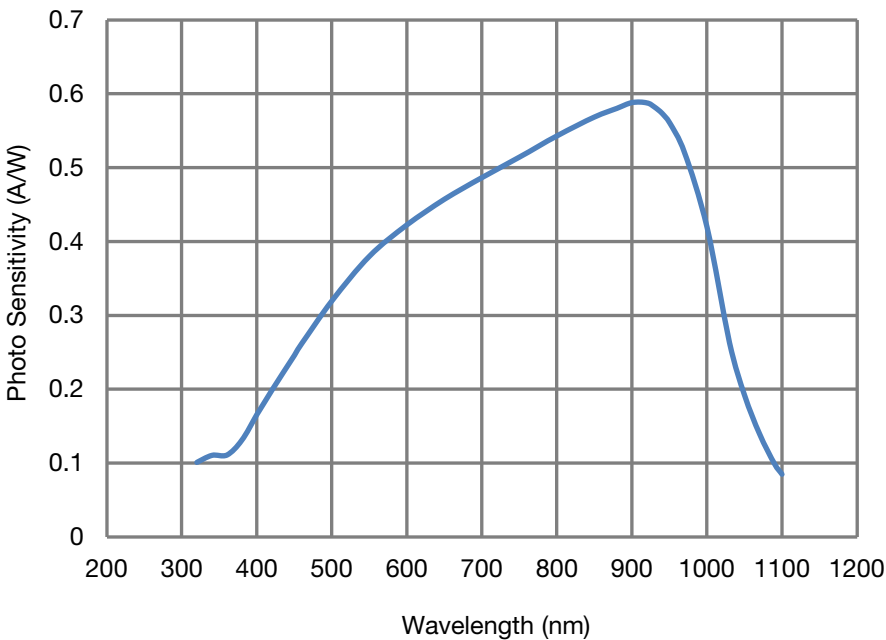


Power supply
Input: 100 – 240 VAC
Output: ±15 VDC

Low Noise 400 kHz Photoreceiver with Si-PIN Photodiode

Specifications	Test conditions	$V_S = \pm 15\text{ V}$, $T_A = 25\text{ }^\circ\text{C}$, output load impedance $1\text{ M}\Omega$, warm-up 20 minutes (min. 10 minutes recommended)
Gain	Transimpedance gain Gain accuracy Conversion gain	$1.0 \times 10^7\text{ V/A}$ (@ output load $\geq 100\text{ k}\Omega$) $\pm 1\%$ (electrical) $5.9 \times 10^6\text{ V/W typ.}$ (@ 920 nm , output load $\geq 100\text{ k}\Omega$)
Frequency Response	Lower cut-off frequency Upper cut-off frequency (-3 dB) Gain flatness	DC 400 kHz $\pm 0.5\text{ dB}$
Time Response	Rise/fall time ($10\% - 90\%$)	900 ns
Input	Noise equivalent power (NEP) Optical saturation power Input offset compensation range	$120\text{ fW}/\sqrt{\text{Hz}}$ (@ 920 nm , 10 kHz) $1.6\text{ }\mu\text{W}$ (for linear amplification, @ 920 nm) $\pm 300\text{ nA}$, adjustable by offset potentiometer
Detector	Detector Active area Spectral range Max. sensitivity	Si-PIN photodiode $\varnothing 3.0\text{ mm}$ $320 - 1060\text{ nm}$ 0.59 A/W typ. (@ 920 nm)
Output	Output voltage range Output impedance Max. output current Output noise	$-3\text{ V} \dots +10\text{ V}$ (@ $\geq 100\text{ k}\Omega$ output load) $50\text{ }\Omega$ (terminate with $\geq 100\text{ k}\Omega$ load) 30 mA (short-circuit proof) $1.6\text{ mV}_{\text{RMS}}$ (10 mV_{PP}) typ. (@ $\geq 100\text{ k}\Omega$ load, no signal on detector, measurement bandwidth 1 MHz)
Input Flange	Material	1.4305 stainless steel, nickel-plated (FST flange) AlMg4.5Mn, nickel-plated (FS flange)
Coupler Ring (FST version only)	Material	1.4305 stainless steel, glass bead blasted
Power Supply	Supply voltage Supply current	$\pm 15\text{ V}$ ($\pm 14.5\text{ V} \dots \pm 16.5\text{ V}$) $\pm 40\text{ mA}$ (depends on operating conditions, recommended power supply capability min. $\pm 150\text{ mA}$)
Case	Weight Material	212 g (0.47 lbs) LCA-S-400K-SI-FST incl. coupler ring 195 g (0.43 lbs) LCA-S-400K-SI-FS AlMg4.5Mn, nickel-plated
Temperature Range	Storage temperature Operating temperature	$-30\text{ }^\circ\text{C} \dots +85\text{ }^\circ\text{C}$ $0\text{ }^\circ\text{C} \dots +60\text{ }^\circ\text{C}$
Absolute Maximum Ratings	Optical input power (CW) Power supply voltage	10 mW $\pm 20\text{ V}$

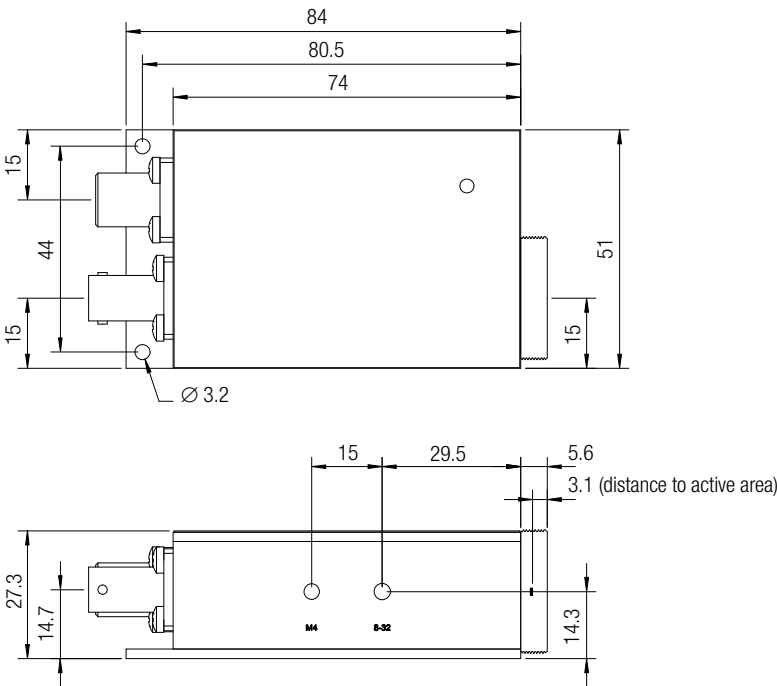
Low Noise 400 kHz Photoreceiver
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Connectors	Input	LCA-S-400K-SI-FST	1.035"-40 threaded flange for free space applications and for use with various types of optical standard accessories
		LCA-S-400K-SI-FS	25 mm dia. unthreaded flange for free space applications
	Output	BNC jack (female)	
	Power supply	LEMO® series 1S, 3-pin fixed socket (mating plug type: FFA.1S.303.CLAC52)	
			Pin 1: +15 V Pin 2: -15 V Pin 3: GND
Scope of Delivery	LCA-S-400K-SI, internally threaded coupler ring (FST version only), LEMO® 3-pin connector, datasheet, transport package		
Ordering Information	LCA-S-400K-SI-FST	1.035"-40 threaded flange for free space applications and for use with various types of optical standard accessories.	
	LCA-S-400K-SI-FS	25 mm dia. unthreaded flange for free space applications.	
Spectral Responsivity	 <p>DB-Sens-LCA-S-400K-SI_R01</p>		

Low Noise 400 kHz Photoreceiver
with Si-PIN Photodiode

Dimensions

LCA-S-400K-SI-FST (1.035"-40 threaded free space input)



DZ_LCA-S-400K-SI-FST_R1

all dimensions in mm unless otherwise noted

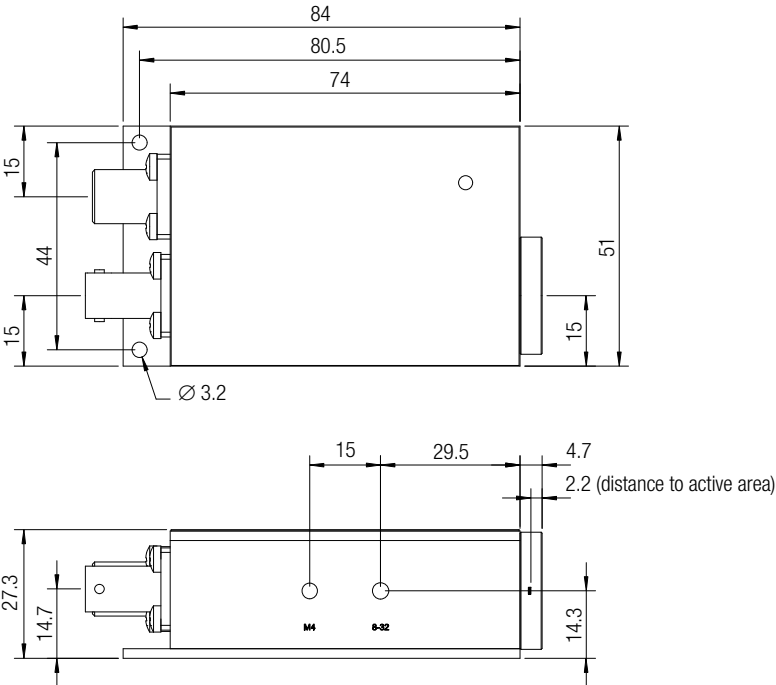
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Dimensions (continued)

LCA-S-400K-SI-FS (25 mm dia. unthreaded free space input)



DZ_LCA-S-400K-SI-FS_R1

all dimensions in mm unless otherwise noted

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