

# MULTIBAND IMAGING PHOTOMETER FOR SPITZER (MIPS) Pocket Guide

<http://ssc.spitzer.caltech.edu/mips/>

## Basic MIPS Capabilities:

Imaging photometry at 24, 70, and 160  $\mu\text{m}$  and low resolution ( $R = 15 - 25$ ) spectroscopy between 55 and 95  $\mu\text{m}$ . A fine pixel scale option at 70  $\mu\text{m}$  (no change required for the other two bands), combined with precise subpixel sampling dither patterns, allow data processing to achieve "super resolution" imaging. A cryogenic scan mirror mechanism provides freeze frame scan mapping, efficient dithering, and other instrument capabilities.

## MIPS Instantaneous Fields of View:

<b>24 <math>\mu\text{m}</math></b>	5.4 $\times$ 5.4 arcminutes
<b>70 <math>\mu\text{m}</math></b>	5.25 $\times$ 2.6 or 2.6 $\times$ 1.3 arcminutes
<b>160 <math>\mu\text{m}</math></b>	0.53 $\times$ 5.33 arcminutes (effective)
<b>SED Slit</b>	3.8 $\times$ 0.32 arcminutes

## Basic Sensitivities (low background):

5 sigma in 500 seconds on source

<b>24 <math>\mu\text{m}</math></b>	110 $\mu\text{Jy}$
<b>70 <math>\mu\text{m}</math> default</b>	7.2 mJy
<b>70 <math>\mu\text{m}</math> fine</b>	14.4 mJy
<b>SED</b>	82/201/447 mJy @ 60/75/90 $\mu\text{m}$
<b>160 <math>\mu\text{m}</math></b>	29 (40 w/ confusion) mJy

## The MIPS Astronomical Observation Templates:

### Photometry & Super Resolution

- Telescope staring mode imaging photometry

### Scan Mapping

- Freeze frame mapping in all three bands with constant telescope slewing

### Spectral Energy Distribution (SED)

- Low resolution ( $R = 15 - 25$ ) spectroscopy over 55 to 95  $\mu\text{m}$  (half power response points)

### Total Power Mode

- Zero level brightness of very extended emission

## The MIPS Detector Arrays:

<b>24 <math>\mu\text{m}</math></b>	Si:As (IBC) 128x128 pixels; 2.55" 4.7 $\mu\text{m}$ bandwidth
<b>70 <math>\mu\text{m}</math></b>	Ge:Ga 32x32 pixels; 4.99" or 9.84" 19 $\mu\text{m}$ bandwidth SED $R = 15 - 25$ (9.84" pixels)
<b>160 <math>\mu\text{m}</math></b>	Stressed Ge:Ga 2x20 pixels; 16.0" 35 $\mu\text{m}$ bandwidth

## Saturation Limits:

Point source in 1 second (Jy); Extended source in 10 seconds (MJy/ster)

<u>Band</u>	<u>Point Source</u>	<u>Extended</u>
<b>24 <math>\mu\text{m}</math></b>	4.1	260
<b>70 <math>\mu\text{m}</math> (default)</b>	23	101
<b>70 <math>\mu\text{m}</math> (fine)</b>	57	292
<b>SED @ 60,75,90<math>\mu\text{m}</math></b>	250/290/1000	1087/1261/4350
<b>160 <math>\mu\text{m}</math></b>	3	20



Prepared by:  
William B. Latter  
SSC/MIPS Instrument Support Team Lead

(v6.5, updated 31 October 05, LMR)

