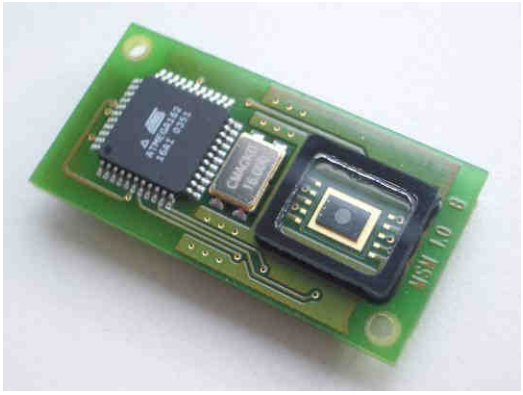
HiperScan
we move the light for you

Scanning Micromirrors Demonstrator Module MD1

- 1D-Scanning Micromirror and driver on board
- The exceptional Fraunhofer-technology for laser beam deflection from the leading manufacturer IPMS Dresden.
- 6 module types available for your tests
  - 500 Hz..28 kHz
  - large deflection: 18..72° optical scan range
  - 0.6..3 mm mirror diameter



Description

The demonstrator module MD1 is an innovative device that can deflect a laser beam or a collimated light beam periodically and fast over a large scan angle. Then the laser spot travels along a straight line.

MD1 combines the scanning micromirror with microcontroller and switch for the drive voltage on a small circuit board. Each module is programmed with a fixed oscillation frequency near resonance. Static deflection of the mirror is not possible. The oscillation amplitude can be adjusted via the external DC.

MD1 requires simply 5V DC for the logic unit and a higher DC voltage, that depends on the mirror type and on the desired deflection amplitude.

The mirror coating is aluminum, a broad-band reflector with approximately 90% reflectance in the visible range. The demonstrators have a glass lid over the microscanner-chip with an anti-reflective coating (ACR) for the visible range.

Microscanner Demonstrators Module MD1

Technical data

Length, width, thickness	40,2mm x 20,0mm x 7,3mm
Supply voltage	5V DC
Mirror voltage	15 – 100 V DC (observe maximum of mirror type)
Max. power consumption	150-600mW
Connector	12 pins in 2 rows with 1 mm pitch (Samtec)
Available mirror diameters	0,6 … 3 mm *
Available oscillation frequencies	500Hz .. 28kHz *
Optical scan range	18° … 72°*
max. mechanical mirror deflection	*±4° … 20°**
Mirror reflectance	>85% (400-750nm)
Transmission of glass lid	>98% (400..600 nm)
Available mirror types	1D
Temperature range	-20℃ ... 60℃

**depends on the mirror type*

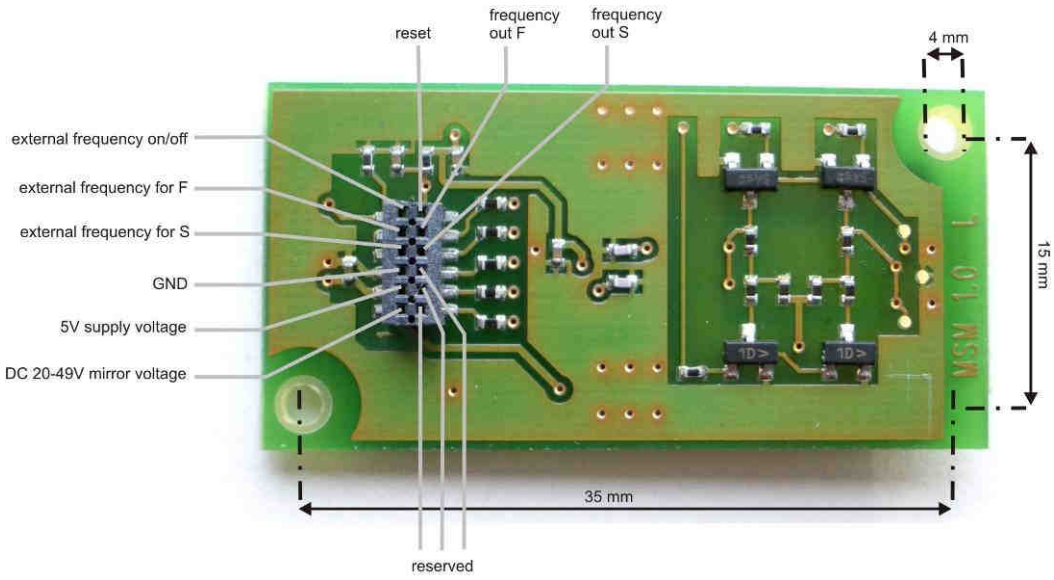
For your evaluation we offer a number of modules. You can get acquainted with the technology and its performance. You can verify the principal feasibility of your microscanner application. And you can develop and approve certain aspects of your system design.

no.	Type	Mirror diameter	Frequency	opt. Scan range	max. voltage	Scan direction
11	D10S0.6	1 mm	600 Hz	40°	30 V	S
12	D10S2.5	1 mm	2,5 kHz	20°	40 V	S
13	D10F20	1 mm	19 kHz	28°	70 V	F
14	D06F28	0,6 mm	27,9 kHz	6,5°	70 V	F
15	D06S1.2	0,6 mm	1,25 kHz	18°	60 V	S

These devices are offered as demonstrators for evaluation purpose only. We cannot give any warranty, if the demonstrators are used in a commercial product. In particular we cannot accept any form of liability.

The next step on your development roadmap can be a customized module with position feedback and with the dimensions and the optical, electrical and mechanical interfaces that meet the requirements of your application. In order to get you the optimized scanning micromirror (speed, size, deflection) we offer Semi-Custom Design, Full-Custom Design or even Custom Technology Development to meet even challenging technical requirements and the different target volumes.

Electrical contacts on module backside



For auto-start apply *mirror voltage* before *5 V*. For re-start apply a 0V-pulse to *reset*.

You may also drive the microscanner at a slightly higher frequency: Set *external frequency* to 0V and apply pulses on TTL-level to *ext. frequency for S*. Please observe that the external frequency is twice oscillation frequency and you need a frequency sweep from three times the oscillation frequency down to twice oscillation frequency in order to start the microscanner. There is no oscillation below resonance! (This mode is restricted with the 19kHz-type D1F20: Please use *ext. frequency for F* instead of S. Further a beat with the internal clock may reduce stability near resonance in this mode.)

Contact info@hiperscan.com
www.hiperscan.com
phone +49-351-88 920-117
fax +49-351-88 920-513
HiperScan GmbH
Maria-Reiche-Str. 2
D-01109 Dresden,
GERMANY