

SigOFIT™ Optical-fiber Isolated Probe MOIP Series Datasheet

- ▶ Bandwidth: 100MHz-1GHz
- ▶ Differential Voltage Range: $\pm 6250V$
- ▶ Common Mode Voltage: 85kVpk
- ▶ CMRR: up to 180dB
- ▶ DC Gain Accuracy: 1%
- ▶ Interface: Universal BNC



Shenzhen Micsig Technology Co., Ltd.

www.micsig.com



Micsig Website

Technical Specifications

| Model & Ordering Name | MOIP100P | MOIP200P | MOIP350P | MOIP500P | MOIP800P | MOIP1000P |
|---------------------------|---------------------------|----------|----------|------------------------|----------|-----------|
| Bandwidth | 100MHz | 200 MHz | 350 MHz | 500 MHz | 800 MHz | 1 GHz |
| Rise time | ≤3.5ns | ≤1.75n | ≤1ns | ≤700ps | ≤438ps | ≤350ps |
| Output Voltage Range | ±1.25V | ±1.25V | ±1.25V | ±500mV | ±500mV | ±500mV |
| Noise | <450μVrms | | | <450μVrms | | |
| Propagation delay | 15.42ns (2m fiber length) | | | 16ns (2m fiber length) | | |
| Power supply | DC 12V | | | | | |
| DC Gain accuracy | 1% | | | | | |
| Common mode voltage range | 85kVpk | | | | | |
| Fiber cable length | 2m (Customizable) | | | | | |

Attenuating tips

| SigOFIT model | Atten. Tip model | Jack type | Attenuation ratio | Voltage range | Non-destructive voltage (Max.) | Input impedance |
|----------------------|---------------------|-----------|-------------------|---------------|--------------------------------|------------------|
| MOIP100P MOIP200P | OP20-3 (Standard) | MMCX | 20:1 @0dB | ±25V | 1000Vpp | 4.47MΩ 4pF |
| | | | 2:1 @20dB | ±2.5V | | |
| | OP50-3 | MMCX | 50:1 @0dB | ±62.5V | 1000Vpp | 4.19MΩ 2pF |
| | | | 5:1 @20dB | ±6.25V | | |
| | OP200-3 | MCX | 200:1 @0dB | ±250V | 2500Vpp | 9.03MΩ 2pF |
| | | | 20:1 @20dB | ±25V | | |
| | OP1000-3 | MCX | 1000:1 @0dB | ±1250V | 2500Vpp | 20.94MΩ 1pF |
| | | | 100:1 @20dB | ±125V | | |
| | OP2000-3 | MCX | 2000:1 @0dB | ±2500V | 2500Vpp | 20.52MΩ 1pF |
| | | | 200:1 @20dB | ±250V | | |
| | OP5000-3 | LCX | 5000:1 @0dB | ±6250V | 8000Vpp | 40.82MΩ 2.4pF |
| | | | 500:1 @20dB | ±625V | | |
| MOIP350P | OP20-3 (Standard) | MMCX | 20:1 @0dB | ±25V | 1000Vpp | 4.47MΩ 4pF |
| | | | 2:1 @20dB | ±2.5V | | |
| | OP50-3 | MMCX | 50:1 @0dB | ±62.5V | 1000Vpp | 4.19MΩ 2pF |
| | | | 5:1 @20dB | ±6.25V | | |
| | OP200-3 | MCX | 200:1 @0dB | ±250V | 2500Vpp | 9.03MΩ 2pF |
| | | | 20:1 @20dB | ±25V | | |
| | OP1000-3 (Standard) | MCX | 1000:1 @0dB | ±1250V | 2500Vpp | 20.94MΩ 1pF |
| | | | 100:1 @20dB | ±125V | | |
| | OP2000-3 | MCX | 2000:1 @0dB | ±2500V | 2500Vpp | 20.52MΩ 1pF |
| | | | 200:1 @20dB | ±250V | | |
| | OP5000-3 | LCX | 5000:1 @0dB | ±6250V | 8000Vpp | 40.82MΩ 2.4pF |
| | | | 500:1 @20dB | ±625V | | |
| MOIP500P | OP20-5 | MMCX | 20:1 @0dB | ±10V | 1000Vpp | 4.47MΩ 4pF |
| | | | 2:1 @20dB | ±1V | | |
| | OP50-5 (Standard) | MMCX | 50:1 @0dB | ±25V | 1000Vpp | 4.19MΩ 2pF |
| | | | 5:1 @20dB | ±2.5V | | |
| | OP100-5 | MMCX | 100:1 @0dB | ±50V | 1000Vpp | 4.10MΩ 2pF |
| | | | 10:1 @20dB | ±5V | | |
| | OP2000-5 (Standard) | MCX | 2000:1 @0dB | ±1000V | 2500Vpp | 20.52MΩ 1pF |
| | | | 200:1 @20dB | ±100V | | |
| | OP5000-5 | MCX | 5000:1 @0dB | ±2500V | 3600Vpp | 40.92MΩ 1pF |
| | | | 500:1 @20dB | ±250V | | |
| | OP10000-5 | LCX | 10000:1 @0dB | ±5000V | 8000Vpp | 40.82MΩ 2.4pF |
| | | | 1000:1 @20dB | ±500V | | |
| 100:1 @20dB | | | ±500V | | | |

| | | | | | | |
|-----------------------|-------------------------|------|------------------------------|-----------------|---------|------------------|
| MOIP800P MOIP1000P | OP20-1G | MMCX | 20:1 @0dB 2:1 @20dB | ±10V ±1V | 1000Vpp | 4.47MΩ 4pF |
| | OP50-1G (Standard) | MMCX | 50:1 @0dB 5:1 @20dB | ±25V ±2.5V | 1000Vpp | 4.19MΩ 2pF |
| | OP100-1G | MMCX | 100:1 @0dB 10:1 @20dB | ±50V ±5V | 1000Vpp | 4.10MΩ 2pF |
| | OP2000-1G (Standard) | MCX | 2000:1 @0dB 200:1 @20dB | ±1000V ±100V | 2500Vpp | 20.52MΩ 1pF |
| | OP5000-1G | MCX | 5000:1 @0dB 500:1 @20dB | ±2500V ±250V | 3600Vpp | 40.92MΩ 1pF |
| | OP10000-1G | LCX | 10000:1 @0dB 1000:1 @20dB | ±5000V ±500V | 8000Vpp | 40.82MΩ 2.4pF |

*According to the jack type of the Attenuating tips, for the MMCX type, it is standardly equipped with 5 MMCX jacks and 1 MMCX coaxial lead; for the MCX type, it is standardly equipped with 5 MCX jacks and 1 MCX coaxial lead; for the LCX type, it is standardly equipped with 1 LCX coaxial lead

| Attenuating tip jack type | Standard kit |
|---------------------------|--|
| MCX | 5 x MCX jacks + 1 x MCX coaxial lead |
| MMCX | 5 x MMCX jacks + 1 x MMCX coaxial lead |
| LCX | 1 x LCX coaxial lead |

Jack and coaxial lead

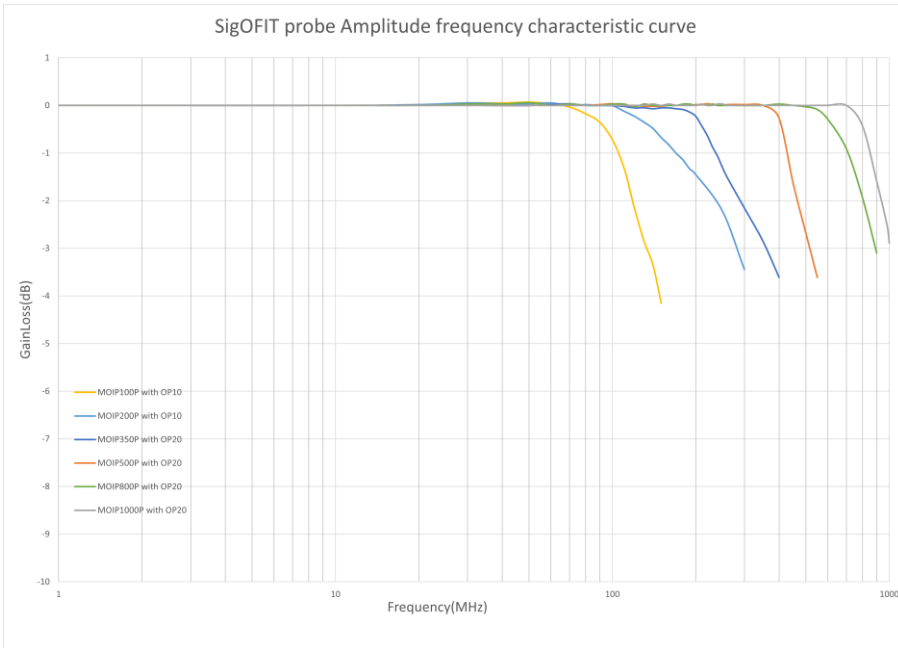
The attenuating tip and Jack, coaxial lead are only suitable for measuring circuits not directly connected to the mains supply, and are not rated for CAT II, III or IV

| Accessory name | Voltage range | Non-destructive voltage (Max.) |
|-------------------|---------------|--------------------------------|
| MCX jack | ±2500V | < 3000Vpp |
| MMCX jack | ±62.5V | < 300Vpp |
| MCX coaxial lead | ±2500V | < 3000Vpp |
| MMCX coaxial lead | ±62.5V | < 300Vpp |
| LCX coaxial lead | ±6250V | < 8000Vpp |

Mechanical characteristics

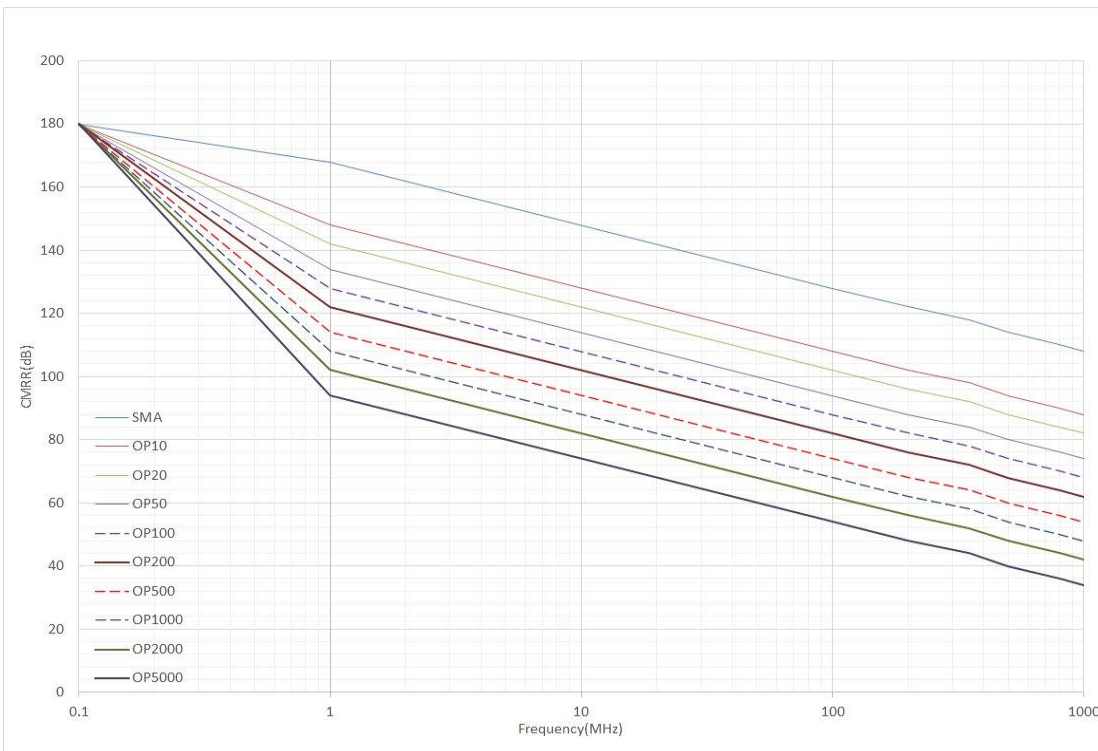
| | Characteristics | Parameters |
|--|---|--------------------|
| | Optical-Electrical (O-E) converter size | 9.8 x 4.5 x 2.1 cm |
| | Electrical-Optical (E-O) converter size | 11 x 4 x 2.3 cm |
| | Optical cable length | 2m |

Amplitude frequency characteristic curve



▲ Amplitude-frequency characteristics of different SigOFIT probes

Attenuating tip CMRR curve



▲ Common mode rejection capabilities of different attenuators (0dB) at various frequencies.

Ordering Information

| Accessories | Models | | | | | |
|----------------------------|---|-------------------|-------------------|-------------------|-------------------|-------------------|
| | MOIP100P | MOIP200P | MOIP350P | MOIP500P | MOIP800P | MOIP1000P |
| 20X Attenuator OP20-3 | Standard 1 pc | Standard 1 pc | Standard 1 pc | X | X | X |
| 1000X Attenuator OP1000-3 | X | X | Standard 1 pc | X | X | X |
| 50X Attenuator OP50-5 | X | X | X | Standard 1 pc | X | X |
| 2000X Attenuator OP2000-5 | X | X | X | Standard 1 pc | X | X |
| 50X Attenuator OP50-1G | X | X | X | X | Standard 1 pc | Standard 1 pc |
| 2000X Attenuator OP2000-1G | X | X | X | X | Standard 1 pc | Standard 1 pc |
| MMCX jack | Standard 5 pcs | Standard 5 pcs | Standard 5 pcs | Standard 5 pcs | Standard 5 pcs | Standard 5 pcs |
| MMCX coaxial lead | Standard 1 pc | Standard 1 pc | Standard 1 pc | Standard 1 pc | Standard 1 pc | Standard 1 pc |
| MCX jack | Optional | Optional | Standard 5 pcs | Standard 5 pcs | Standard 5 pcs | Standard 5 pcs |
| MCX coaxial lead | Optional | Optional | Standard 1 pc | Standard 1 pc | Standard 1 pc | Standard 1 pc |
| Carrying Suitcase | Standard | | | | | |
| Probe Mount | Standard | | | | | |
| USB type-C | Standard | | | | | |
| Power adapter | Standard | | | | | |
| Quick user guide | Standard | | | | | |
| Calibration Certificate | Standard | | | | | |
| Packing list | Standard | | | | | |
| Other Attenuating tip(s) | Please refer to the Attenuating tip configuration table for optional choice | | | | | |

Optional accessory set ordering information

| Set type | Set included |
|-----------------------------|--|
| MCX set | 5 x MCX jacks + 1 x MCX coaxial lead |
| MMCX set | 5 x MMCX jacks + 1 x MMCX coaxial lead |
| LCX set | 1 x LCX coaxial lead |
| MCX extension cable set | 1 x MCX extension cable + pin header |
| MMCX extension cable set | 1 x MMCX extension cable + pin header |
| MCX IC clip set | 1 x MCX extension cable + 1 pair of IC clip |
| MMCX IC clip set | 1 x MMCX extension cable + 1 pair of IC clip |
| MCX five-hole connector set | 1 x MCX five-hole connector + pin header |
| RS-485 Data converter set | 1 x RS-485 Data converter + power adapter |

Attenuating tips

| | |
|-----------|----------------------|
| OP20-x | Attenuator of 20X |
| OP50-x | Attenuator of 50X |
| OP100-x | Attenuator of 100X |
| OP200-x | Attenuator of 200X |
| OP1000-x | Attenuator of 1000X |
| OP2000-x | Attenuator of 2000X |
| OP5000-x | Attenuator of 5000X |
| OP10000-x | Attenuator of 10000X |

Remarks:

OPXX-* is attenuator tip, XX refers attenuation ratio, * refers bandwidth.

e.g. OP50-5 is an attenuator tip with 50X, bandwidth of 500MHz.

Refer to following Attenuating tip configuration table choose applicable attenuating tip:

| Model No. | Standard Tip(s) | Optional Tip(s) |
|-----------|----------------------|--|
| MOIP100P | OP20-3 | OP20-3, OP50-3, OP200-3 OP1000-3, OP2000-3, OP5000-3 |
| MOIP200P | | |
| MOIP350P | OP20-3 OP1000-3 | |
| MOIP500P | OP50-5 OP2000-5 | OP20-5, OP50-5, OP100-5 OP2000-5, OP5000-5, OP10000-5 |
| MOIP800P | OP50-1G OP2000-1G | OP20-1G, OP50-1G, OP100-1G OP2000-1G, OP5000-1G, OP10000-1G |
| MOIP1000P | | |

Supported oscilloscope

Any oscilloscope with standard BNC interface and 50Ω impedance.

Introduction to other optional attenuator connectors

The MOIP series of optical isolation probes from Micsig support the use of multiple connectors to connect to the circuit under test. The following table shows the introduction of various connectors. Different connectors may affect the accuracy of the test results. Please try to select the standard connector for connection. If you need an optional connector, please consult the customer service for purchase.

| Connectors | Jack type | Note |
|---|--------------------|--|
| Adapter | MMCX MCX | Solder the adapter on the circuit, and then insert the attenuator directly into the adapter |
| Coaxial lead | MMCX MCX LCX | Solder the coaxial extension line to the test point, and then connect the attenuator. |
| Five-hole connector + Pin header (optional) | MCX | Solder the pin header on the circuit. Then, after the five-hole connector is connected to the attenuator, insert it into the pin header. |
| Extension cable + Pin header (optional) | MMCX MCX | Solder the pin header on the circuit. Then, after the extension line is connected to the attenuator, insert it into the pin header. |
| Extension cable + IC clip (optional) | MMCX MCX | The extension line is connected to the IC clip, and then to the attenuator. Just clamp the signal test point with the IC clip. |

Remote Control

The MOIP series of optical isolation probes from Micsig supports the combination with the RS-485 data converter (optional) to remotely send serial port commands to achieve self-calibration and 0dB/20dB gear switching functions.



RS-485 data converter (optional)

Serial port command list:

| Serial port command | Execute command |
|---------------------|-------------------------|
| AA 09 02 55 A8 F8 | 0dB/20dB gear switching |
| AA 09 00 F7 | Self-calibration |

Service options

Optical-fiber Isolated Probe main unit warranty for **1 year** (extendable with extra charge). The SigOFIT probe contains high-quality components and should be treated with care, **Damage to the fiber optic cable is NOT covered by the warranty.**

Standard accessories are NOT covered in main unit warranty.

Micsig provides one-on-one exclusive technical support service.

During the warranty period, Micsig will be responsible for providing free maintenance for any malfunctions caused by quality issues within the normal use of the product that have not been disassembled or repaired.

The warranty will be invalid in the following cases, but repair services can be provided, free of labor costs, and only parts fees will be charged:

- a. Any damage to accessories caused by improper use, maintenance, or storage by consumers.
- b. Damage caused by force majeure factors, such as natural disasters.

Micsig will refuse to provide repair services or provide paid repair services in the following situations:

- a. Unauthorized dismantling, such as changing wires, dismantling internal components, etc.
- b. No sales voucher or the content of the sales voucher does not match the product.

* Micsig reserves the right of final interpretation for the content hereinabove;

* It is subject to update without prior notice;

* Please contact local distributor for any inquiry or send us email directly.

 **Shenzhen Micsig Technology Co., Ltd.**

Tel: +86-(0)755-88600880 Email: sales@micsig.com Website: www.micsig.com

Add: 6F, Jinhuan Building, No. 56, Tiezai Rd, Bao'an District, Shenzhen, Guangdong, China.

*Micsig reserves all the rights of interpretation at any time, it is subject to update without prior notice.